

DECEMBER 4, 1937

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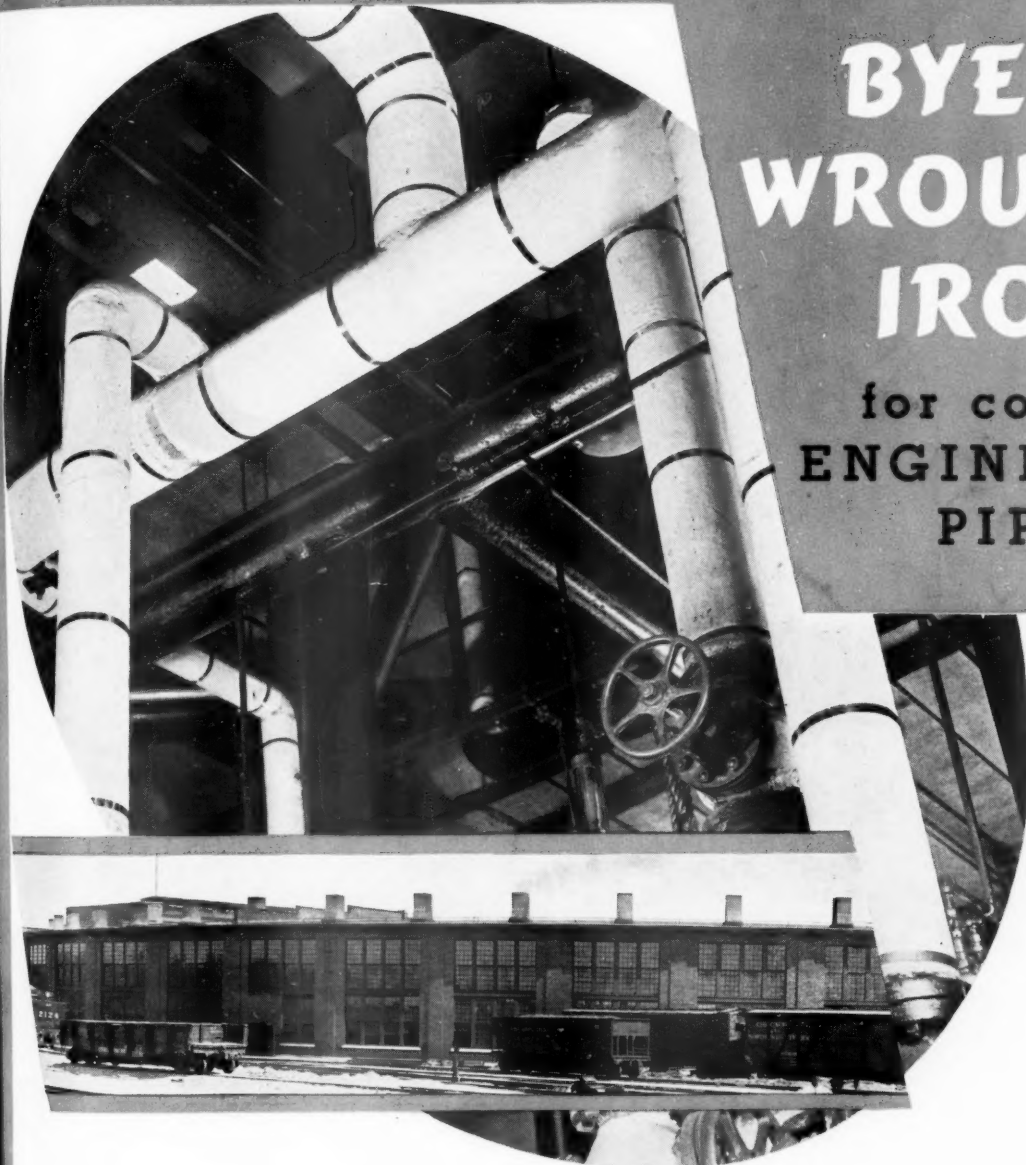
Railway Age

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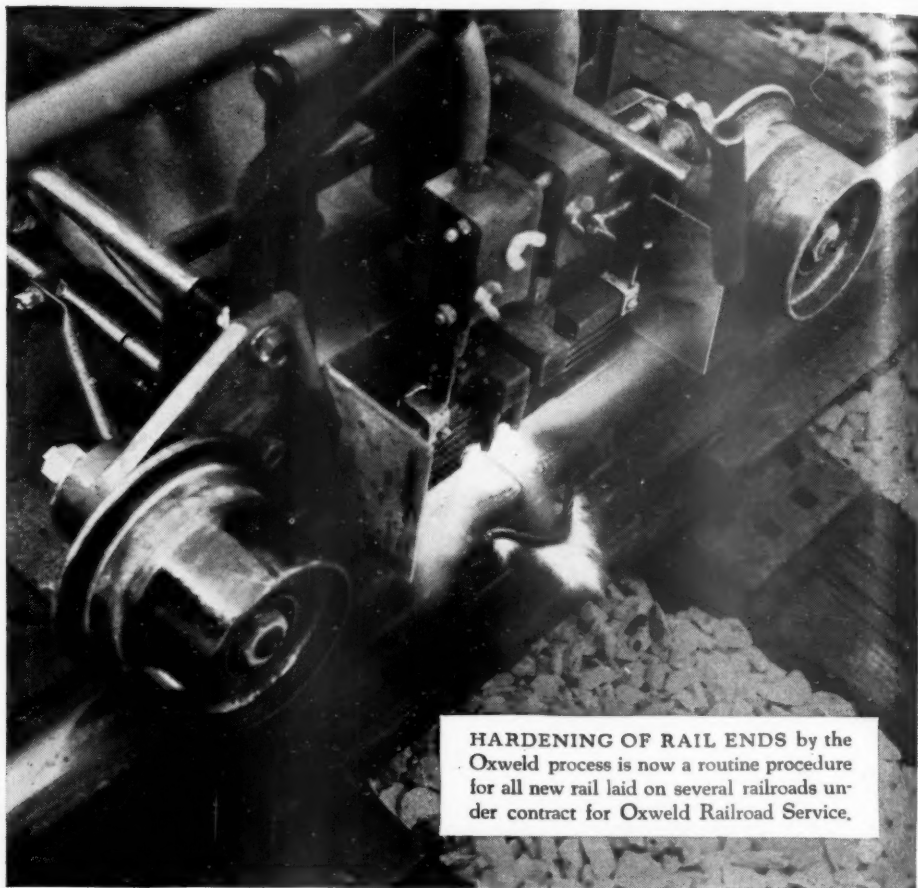
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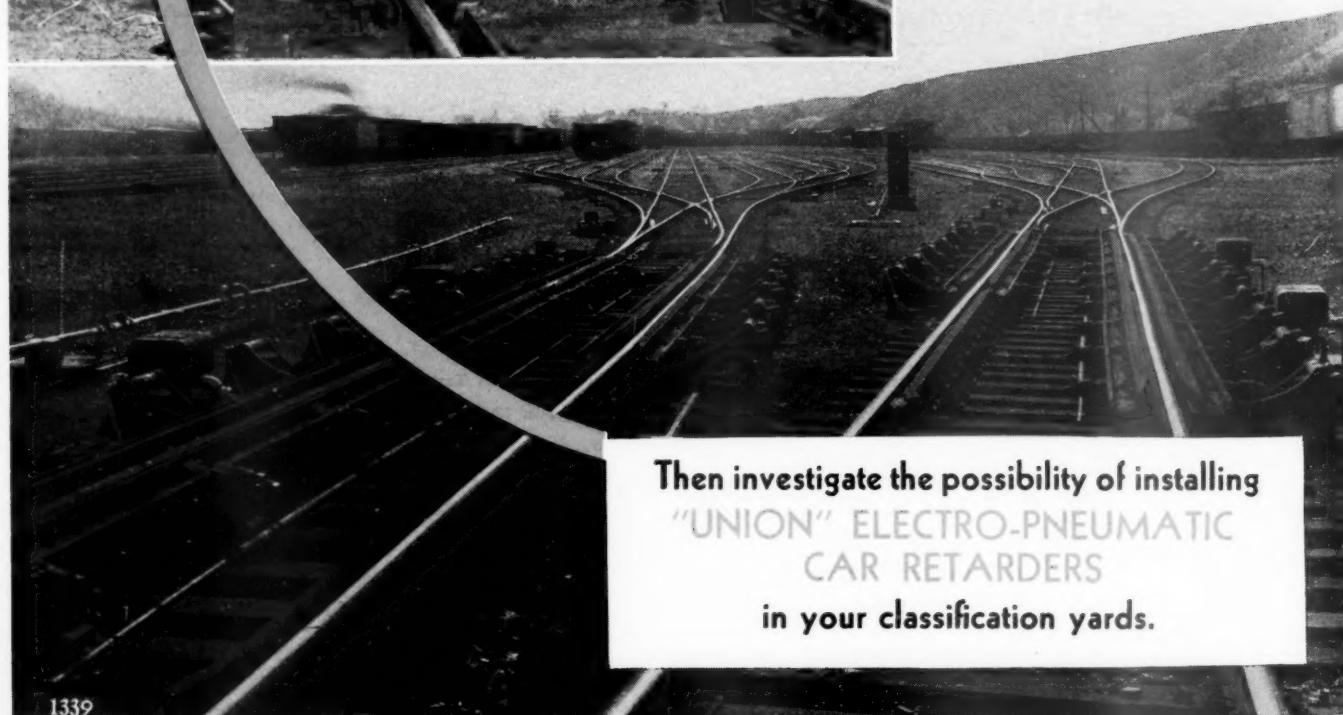
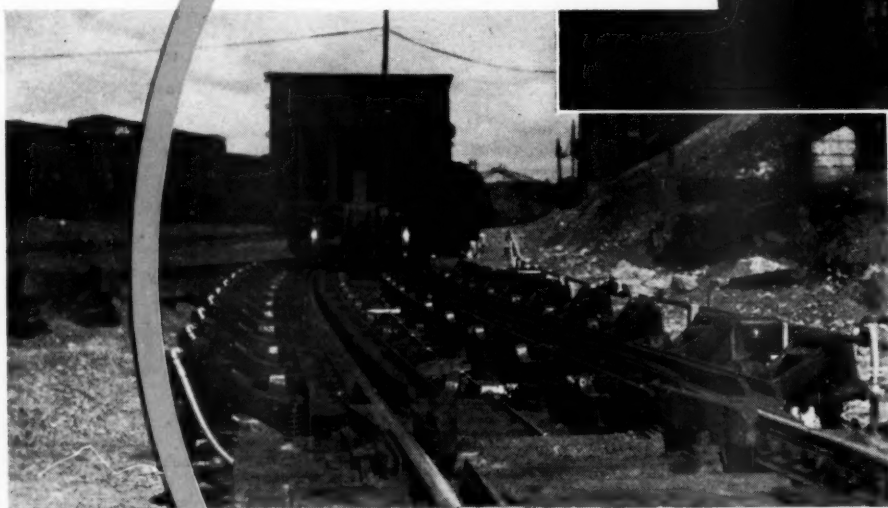
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1339

1881

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The Week at a Glance

CARLOADINGS SLUMP: In the November 20 week freight cars loaded totaled 647 thousand, down 18 per cent under last year.

JESSE JAMES: A couple of shoddy imitators of the Midwest's famous bandit last week stuck up passengers in the Rock Island—S.P.'s "Apache" in New Mexico. Dressed up, as they supposed, like cowboys, the gunmen were set upon by trainmen and in the scuffle one of the latter was killed.

N. & W. PROGRAM FOR A. & B.: \$3,700,000 will be spent by the Norfolk & Western in the near future for 25,000 tons of rail, 4000 sets of AB brakes, new shop tools and roadway and signaling extensions.

NEW BRIDGE TESTS: Unusual designs of rigid-frame grade separation bridges have been given loading tests by the Santa Fe, demonstrating the reliability of the methods used by the engineers in calculating the stresses when they designed the structures. Construction methods and results of tests are set forth in an illustrated article herein.

N. H. FOOD BARGAINS: The New Haven has placed in service 5 new cafeteria-style dining cars where a good breakfast can be had for 35 cents and lunch and dinner for 60 cents. The bar department will sell draft beer or ale at 10 cents a glass and the prices of mixed drinks begin at a quarter. The car, which seats 57 customers, will be operated by 6 employees. Designed to supplement, rather than replace present dining cars, an illustrated descriptive article herein sets forth the many novel features of this interesting innovation.

PASSENGER CAR TRENDS: The specific things the public demands in the way of passenger equipment and the innovations which car builders are providing to meet these demands received a thorough airing at a recent meeting of the Western Railway Club, reported herein. The Western roads in 1936 handled twice the passenger business they did in 1933 and H. W. Siddall in his paper tells the changes which brought about this remarkable improvement.

ARCH BAR REPRIEVE: The A. A. R. has extended until July 1, next year the "dead line" beyond which cars with arch bar trucks will not be accepted in interchange. After April 1, however, a road accepting an arch bar car need not pay the owning road any per diem on it.

F. D. R. DROPS A BOMB: The President wants Congress to cut the federal highway aid pork barrel to the pre-depression level—as a step toward balancing the budget. The cries from the highway-minded politicians are already rending the air on Capitol Hill—and the nation is about to be deluged (we suppose) by

propaganda from highway and motor interests trying to prove that budget-balancing should be done at the expense of every federal outlay except the highway subsidy. The man (or industry) who gets used to something for nothing feels quite as mistreated when the heavy sugar is cut off as if somebody had stolen something from him.

ACCIDENTS INCREASE: Train accidents in August totaled 685—up 9.6 per cent over last year. Fatalities rose 7.2 per cent and injuries 16.8 per cent.

RATE HEARINGS OPEN: "Standing room only" was the situation at the I.C.C. last Monday when hearings in the 15 per cent rate increase case, Ex Parte 123, began. Ralph Budd said the roads would spend 900 millions a year on improved facilities and equipment if their credit were restored. He said they could advantageously purchase 2,000 new locomotives and 100,000 new freight cars a year—and that \$125,000,000 annually could be saved in operating expenses if present car equipment were replaced by cars of lighter weight. Other witnesses at the hearing opening, whose testimony is reported herein, include J. J. Pelley, Fairman Dick, Dr. Julius H. Parmelee, and chief executives of over a dozen large systems.

PULLMAN WANTS 10% MORE: The Pullman Company is seeking a 10 per cent hike in its rates for sleeping and parlor car space, and its petition has been docketed by the I.C.C. as Ex Parte 125.

OCT. NET DOWN 32%: Net railway operating income in October totaled 61 millions—a reduction of 32 per cent from October last year, gross revenues having declined 4.7 per cent and operating costs being 3.6 greater than a year ago. Net income (after interest) for the first nine months of the year was 70 millions—the net for September alone being 16 millions, as compared with 26 millions in September, 1936. Further details are given in the news pages herein.

NEW FRISCO PLAN: A new plan for reorganizing the Frisco has been filed with the I.C.C. and the federal court at St. Louis. Under it, fixed interest requirements would be reduced from 13 millions a year to less than 4 millions. The plan also provides for the issuance of income bonds—a form of security not always wholeheartedly endorsed by the I.C.C.

RAILWAY BUYING INCREASES: November was the biggest month in equipment buying for some time, it is pointed out in an editorial herein. Rail orders were the largest of any month of the year, passenger car orders were greater than in any month since July and more freight cars were ordered than in any month since May.

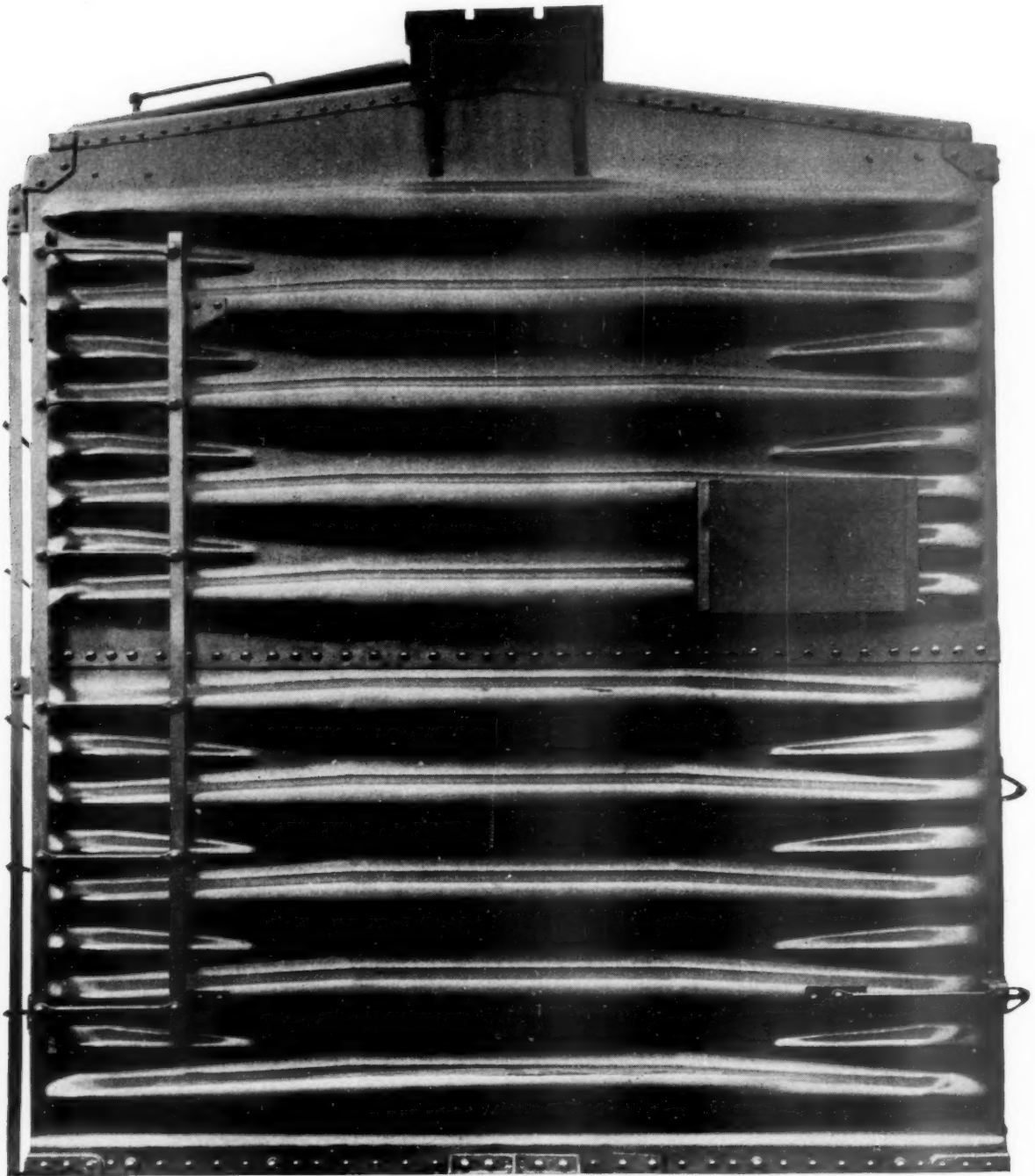
PROFITS, KEY TO RECOVERY: Washington and the public generally now appear to realize, for the first time in many years, that reasonable business profits are the sole means of re-attaining normal prosperity and employment. Radio commentators, newspaper editorial writers and the financial editor of the largest New Deal daily have pointed to an increase in freight rates as the best news which could develop to halt the recession in business and employment. The significance of this change in attitude from that which prevailed so long namely, that profligate government spending is the way out of an economic crisis) is reviewed in the leading editorial herein, which finds in this new viewpoint grounds for encouragement to all believers in private enterprise.

READING "BABY" ARRIVES: The Reading's new streamliner (as yet unnamed) was formally turned over to the road last Monday by the builder—in ceremonies which went out over the radio from Philadelphia. Immediately following, a party of the press and several distinguished guests were taken for a trip in the new train for lunch at Hershey. On this excursion, in addition to President Scheer and other officers of the road, was the venerable chairman of its executive committee, E. T. Stotesbury, who, in his 89th year, is keen in his enthusiasm for the new train.

TELEGRAPH SUIT: The government's suit against the telegraph companies apparently has as its objective the ending of exclusive contracts with railroads and other property owners whereby the latter, in collaborating with one of the companies, are required to bind themselves not to do business similarly with any other telegraph company.

C. N. R.'S NEW LINE: The Canadian National this week began mixed train service on 36 miles of the 99-mile line it is building from Senneterre to Noranda, in northern Quebec, which will shorten the rail distance between Noranda and Montreal and provide transportation service to a rapidly developing mineral area.

FEDERAL COMPETITION: Persons who believe that the utilities are the principal victims of government competition with private industry should have their attention called to the article "Shipping Aided By Government" in the news pages herein. The Panama Canal is operated at a deficit for the benefit of inter-coastal steamers (and McAdoo wants tolls lifted from them entirely), the War Department spent 234 millions in the past fiscal year on 342 separate projects for assistance to the railways' water competitors, and the government barge line did a gross business of nearly \$7,000,000 in the last fiscal year—all of it business which the railroads could have carried at lower total costs.



**THE RESILIENCY OF THE DREADNAUGHT END
HAS CONTRIBUTED MUCH IN REDUCING DAMAGE
CLAIMS TO BREAKABLE FREIGHT**

The Significance of the Changing Attitude Toward Business

The most encouraging characteristic of the attitudes of the public and government toward the recent recession in business is their apparently general acceptance of the fact that the main reliance for counteracting it must be the stimulation of private enterprise. And, at long last, the importance to the nation of reasonably prosperous railroads—and hence, normal purchases by the railroads of the products of other industry—seems to have made an impression on the public and official mind.

Public Works Are Aspirin Tablets

Excessive governmental expenditure on relief and public works is only an opiate which eases the pain of an economic depression. It does not cure it—in fact, it makes the cure more difficult, by piling up a tax burden for private industry, and private citizens, to carry. The only lasting cure of an economic maladjustment is for those elements in the system which have suffered “maladjustment” (i.e., the lack of opportunity to make a profit) to have restored to them at least a sporting chance of making some money from their activity.

You can't expect a working man to work if he can receive a larger income by doing nothing on relief. Neither can the man with money to invest be expected to invest it in private industry, where it will put men and machines to work, unless private industry can offer him comparative safety of his principal and a somewhat larger return than he can secure by putting his money in tax-exempt government bonds.

These facts are simply elementary economics—but they are fundamental. They cannot be disregarded without visiting retribution upon the society which fails to pay heed to them. Yet America has held them in scant respect since 1930 when President Hoover succeeded in inducing a large part of American business, including the railroads, to take the perilous step of disregarding the necessity of profit to the successful functioning of business, and largely to increase its expenditures in face of a declining demand and a declining price level.

There was, to be sure, a material improvement in business under the New Deal, despite its failure to recognize the fundamental importance of adequate profits

to the continuance of the capitalist system of production—this revival occurring because business profits actually did increase despite any direct governmental concern for them. But the improvement did not continue. And its failure to continue has been due, in part at least, to governmental policies which pursued goals inimical to business profits.

A Limit to the “Purchasing Power” Theory

One of these policies has been adherence to the so-called “purchasing power” theory of promoting economic prosperity. The argument of this theory is that higher and higher wages, giving employees more and more to spend, provide a growing market for the products of industry. There is a grain of truth in this argument—but there are many reservations which must be made concerning it. In the first place, it is still the prospect for profit which induces the investment needed to increase the volume of production. *“Increased mass purchasing power” through higher wages, therefore, is an incentive toward greater production only insofar as it may hold out the promise for substantial business profits.* Money makes the mare go—but not money which people refuse to spend because they believe that spending or investing would be unprofitable.

There are those who argue—and with great cogency—that the proper way in which to stimulate “mass purchasing power” is by decreases in prices rather than, primarily, by increased wages. That contention, however, need not concern us in making the fundamental reservation concerning the “purchasing power” theory, namely, that *the purchasing power theory will not work to stimulate business and employment if it operates to increase wages to the extent of reducing profits to the vanishing point.*

This is the fundamental mistake that government and labor unions have made in their pursuit of the “purchasing power” theory. Now, there are signs everywhere of the recognition of the weakness of this theory, when applied without thought to business profits. If the “purchasing power” theory alone, without concern for profits, were well founded, then America today would be at a pinnacle of prosperity, because never before in history has this theory been so widely

and deeply applied as it has in the United States under the New Deal.

Increasing industrial production depends for its markets upon "mass purchasing power" then, but it depends first on people being willing to invest their money to provide the products to be consumed, and to employ the labor necessary to produce these products. Prominent among the industries standing ready to increase largely their expenditures and their employment, and thus bring the present recession to a halt, are the railroads—asking to this end only a modest increase in rates, the effect of which on the selling price of most commodities the railways transport would be infinitesimal.

Freight Rate Rise vs. Increased Taxes for Relief

Indications are that the vast majority of railway patrons are sufficiently far-sighted to realize that an increase in freight rates, every cent of which will come back to them in the aggregate in increased purchases and employment, is a far better bargain than contributing a similar sum in taxes for unemployment relief. A correspondent expresses the point quite clearly as follows:

Whatever amount may be allowed by the Interstate Commerce Commission in the way of increased rates to the railroads, the result should be that government would require at least that much less for public works for relief purposes; in fact, five or six hundred millions allowed in increased rates to the railroads would have a wider distribution in its expenditure throughout the country, and be expended far more constructively than any money expended for relief purposes, and would put a large number of people to work. If the government spends a billion for relief purposes this fund must be derived from taxes, and by the same token one-half a billion increased revenue allowed the railroads would also come from the people, so that the people would not be taxed any more providing the government would reduce its appropriation for relief.

The point that I am trying to make is that relief is far more efficiently provided through railway and industrial expenditures than any other way.

Exactly. Because increased railway expenditures will in turn increase business profits, production and employment and be the surest first step toward the ultimate return of railway traffic to a volume which would permit of lower rates, while still maintaining railway credit and a normal volume of railway employment and expenditures.

Not only among the shipping public and in government has the realization of the public interest in increased railway earnings been growing, but among the leaders of organized labor as well. In the December issue of the "Railway Clerk," President George M. Harrison of the Brotherhood of Railway Clerks, Chairman of the Association of Railway Labor Executives, says:

"It is of vital consequence to every railroad employee that the [railroad] industry" should prosper, and

"The railroads not only have the wholehearted support of their employees in this [rate increase] matter, but we believe they also have the support of enlightened

shippers who realize that our transportation system, if it is to continue to render adequate and efficient service, must be based upon rates which cover legitimate cost of production, including fair wages and reasonable working conditions for employees, and a fair return to the owners. Shippers also know that the increase in the price of what they sell the railroads has made them responsible to a great extent for the need for this added revenue.

The Dove Has Brought Back an Olive Branch

So, after years of dealing with the depression by "pump priming" public works and by increasing "mass purchasing power" by wage increases—regardless of the effect of either of these efforts on business profits—it appears that at last the only sure way of making private enterprise function—the method of a reasonable opportunity for fair profits—is to be given the attention it deserves.

There is nothing which has happened in eight long years of sub-normal business which is so significant in its possibilities for good. Here at last is a program which, if it is consistently pursued, will really put an end to the depression. Business everywhere should support this program, and encourage by every means at its command the leaders in government who are sponsoring this change in attitude toward business. And in no way can it show its sincerity in support of this changing view more appropriately than by wholehearted backing of rate increases which will restore some measure of profitability to the railroad industry.

Equipment and Rail Buying in 1936 and 1937

There was a definite upturn in railroad equipment buying last month. November totals were 13 locomotives, 1,625 freight cars and 13 passenger-train cars according to domestic orders reported in the *Railway Age*. By this volume of purchasing the railway equipment market shows definite signs of renewed vitality, especially when it is recalled that orders for but 21 freight cars comprised the whole of the equipment picture for October.

The rail market, with orders for 61,727 tons booked during November, attained a new high point for the year; tonnage for that month was far in excess of that recorded during any previous month of the current year, being about 60 per cent greater than the volume of its nearest rival month, January, when 39,200 tons were ordered.

November's car-buying record holds up well in comparison with other months since April, when the slump in equipment buying became apparent. The 13 passenger cars ordered during the month exceed the totals for each of the last six months, with the exception of July,

when 14 cars were purchased. Likewise, the month's freight car total of 1,625 exceeds the figure for each previous month since May.

The total amount of equipment ordered in eleven months of 1937, as reported by *Railway Age*, does not compare very unfavorably with the total amount ordered in the first eleven months of 1936; but the orders placed in the first halves and second halves of the two years present striking contrasts. The orders placed in the first half of 1937 largely exceeded those placed in the first half of 1936, whereas the orders placed in the second half of 1937 have thus far been much smaller than in the second half of 1936. There has been a sharp decline throughout the year in orders for rail, although a few large orders recently have been placed. Total orders for equipment and rail placed in the first eleven months of 1936 and 1937, in the first six months of each year and in the subsequent five months of each year are shown in an accompanying table.

Eleven Months' Orders of Equipment and Rail—1936 and 1937

	Eleven Months		First Six Months		Five Months July-November, Incl.	
	1936	1937	1936	1937	1936	1937
Locomotives ..	354	291	126	228	228	63
Freight Cars ..	40,214	49,451	26,560	45,090	13,654	9,361
Passenger Cars	256	484	147	456	109	28
Rail (tons) ...	940,294	161,844	468,485	65,017	471,809	96,827

The explanation of the difference between the trends of buying in 1936 and 1937 is easy to make. Railway net operating income was increasing throughout 1936 and the first six months of 1937. Therefore, throughout these eighteen months railway buying of equipment increased. Railway net operating income has been less in every month of 1937 since June than it was in the corresponding month of 1936. Consequently during the second half of 1937 railway buying has been declining.

Chilled Car Wheel Benefits by Research

The advantages of organized industrial research are perhaps nowhere better exemplified than in the successful efforts of the Association of Manufacturers of Chilled Car Wheels to develop and standardize improved manufacturing methods which are largely responsible for the present high standard of reliability and performance of chilled iron car wheels. The association is striving for still further improvement, and, to this end, is working with the Wheel Committee of the A.A.R. Mechanical Division, as well as holding technical meetings like the recent one at Chicago, on September 21 and 22, when 121 operating men and technical experts, representing 19 individual companies engaged in the manufacture of chilled car wheels, gathered to discuss their mutual problems.

During the past year the A.M.C.C.W. Research Department has assembled data regarding all of the best known methods of melting iron in a cupola,

especially as it relates to the car-wheel foundry. These data, supplemented by original research information worked out by the department, are presented in a pamphlet on recommended cupola practice, which is unique in this field in that it gives specific recommendations on the operation of cupolas of all common sizes for the manufacture of chilled car wheels. The preparation and distribution of this pamphlet is expected to prove of great assistance in the development of uniform melting practices throughout the association membership.

Also during the past year a new department has been set up in the association for the inspection and testing of wheels at all member plants. While this department may be considered still in its infancy, it has already accomplished a great deal in promoting the use of the most improved methods of testing and inspecting at all of the wheel foundries. This has brought out the advantage of standardization of methods and instruments for measuring temperatures at all points in the manufacturing process. To make this possible, a modern pyrometry laboratory has been set up in the Research Department at Chicago for the calibration and repair of pyrometers and thermo-couples used at the various wheel foundries.

Doubtless the most important single improvement to date in the heat treatment of chilled car wheels has been accomplished in the past two years by the development of the low-heat-capacity pit in which the hot wheels are placed after they are shaken out of the mold at the foundry. The result obtained is a practically complete relief of internal stresses in the wheel as well as a modification and improvement in the grain structure. Wheels of this type are much more capable of withstanding the high thermal stresses that are occasionally developed when defective brake mechanisms cause the brake shoes to stick or drag on the wheels in service. It also results in increased resistance of flange and rim to impact blows.

This pit and method of heat treating was developed by the A.M.C.C.W. Research Department and was offered to the member companies a year ago after a one year's trial installation under the supervision of the department. Since that time six wheel foundries have made complete installations and as many more are in the process of construction. A considerable number of other plants are planning on adopting this improved practice in the very near future. Added to these are several plants in which the present facilities have been revamped to simulate the cooling curves obtained in the recommended design.

Information developed through the research work of the Association of Manufacturers of Chilled Car Wheels is furnished to the member wheel foundry organizations by means of bulletins, plant visits and technical meetings. The result is that the findings of modern research are quickly adapted to the improvement of an important product which the railways use in the public service.



The Undercrossing for Central Avenue

Design of Rigid-Frame Bridge Checked by Field Tests

Investigation of grade separation structures at Albuquerque also verifies assumptions concerning impact factor and lateral distribution of loads

By C. H. Sandberg

Assistant Engineer, Atchison, Topeka & Santa Fe, Chicago

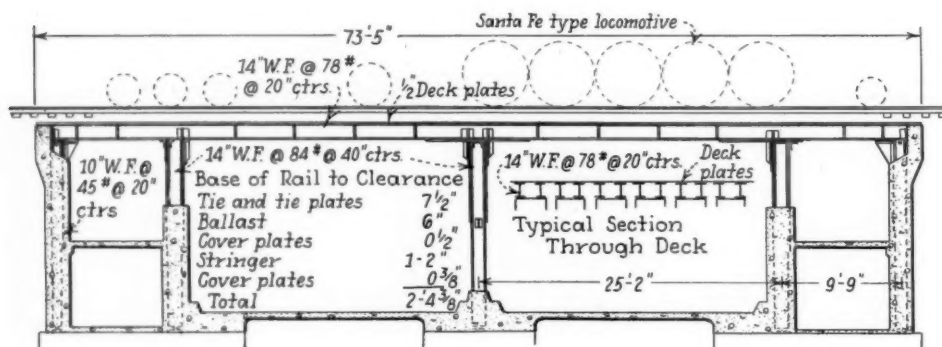
LOCOMOTIVE loading tests recently conducted by the Atchison, Topeka & Santa Fe on two new grade separation bridges at Albuquerque, N. M., demonstrated the reliability of the procedure and assumptions involved in the calculation of stresses in structures of rather unusual design. Among the points under investigation were the distribution of stresses in steel rigid frames, the lateral distribution of track loads over parallel longitudinal beams, and the impact effects of moving locomotives. Observed stresses and deflections corresponded, within close limits, with those determined by computations.

The two structures carry Santa Fe tracks over Tijeras road and Central avenue in Albuquerque, N. M., and since these two thoroughfares are located close to the passenger station, it was important that the tracks be elevated as little as possible, but as the lowering of the streets introduced serious complications that increased with the amount of the depression it was also important

to provide a bridge floor of minimum practical thickness. As through girder construction was precluded because of the spacing and alinement of the tracks, the use of a longitudinal beam design was indicated, and to limit beam depth resort was had to multiple-span, rigid-frame construction.

Multiple Span Structures

As seen in the longitudinal sections of the structures, columns were introduced at the curb lines in both bridges and also at the center line of the roadway in Central avenue. The roadway spans are 27 ft. 4 in. and 25 ft. 2 in., respectively, at the two streets, measured center to center of columns. However, owing to the stress distribution to be realized in a rigid frame, it was possible to develop a design with a total floor depth of only 2 ft. 4 $\frac{5}{8}$ in., base of rail to under clearance at Tijeras road and $\frac{1}{4}$ in. less at Central avenue.



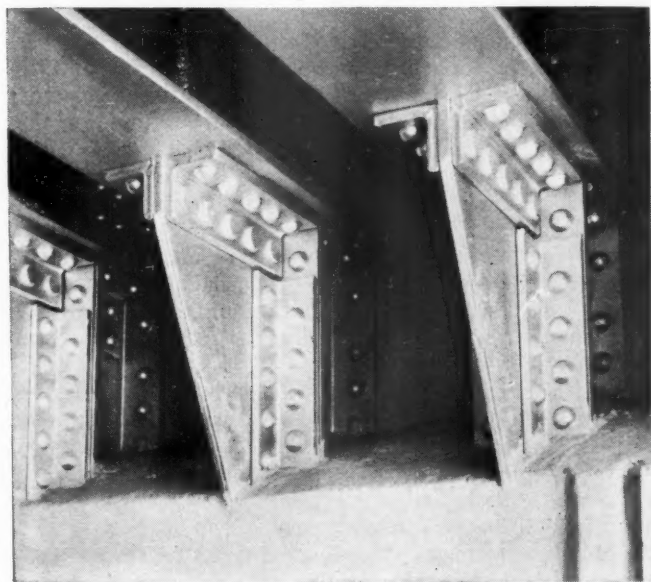
Longitudinal Section of the Central Avenue Structure in Relation to the Wheel Spacing of the Santa Fe Type Locomotive Used in the Stress Investigation

The floor embraces 14-in. wide-flange beams, weighing 78 lb. per ft. and spaced 20 in. center to center. They are covered with a deck plate and have cover plates on the under side in the zones of negative moment adjacent to the intermediate columns. The end or abutment columns are 10-in., 45-lb. beams at the same spacing as the deck beams, but, as shown in the photographs, the intermediate columns, made up of 14-in., 84-lb. sections, are at twice the spacing, an ingenious cap design being introduced so that two beams are supported on each column.

End Columns Encased

As is also evident from the illustrations, the end columns are encased in concrete to take the earth pressure and surcharge and thus obviate the need for heavy abutments. Similarly, the curb line columns are encased for two-thirds of their height by the walls that support the sidewalks at a considerable elevation above the roadway, and by concrete railings.

The deck plates and cover plates were welded to the beams, and to assist in a lateral distribution of the load to the beams, diaphragms were welded between them. However, riveted construction was also employed, each type of connection being employed in both field and shop where it was thought to be advantageous. The transfer of bending moment from the beams to the columns was readily effected without introducing brackets except at

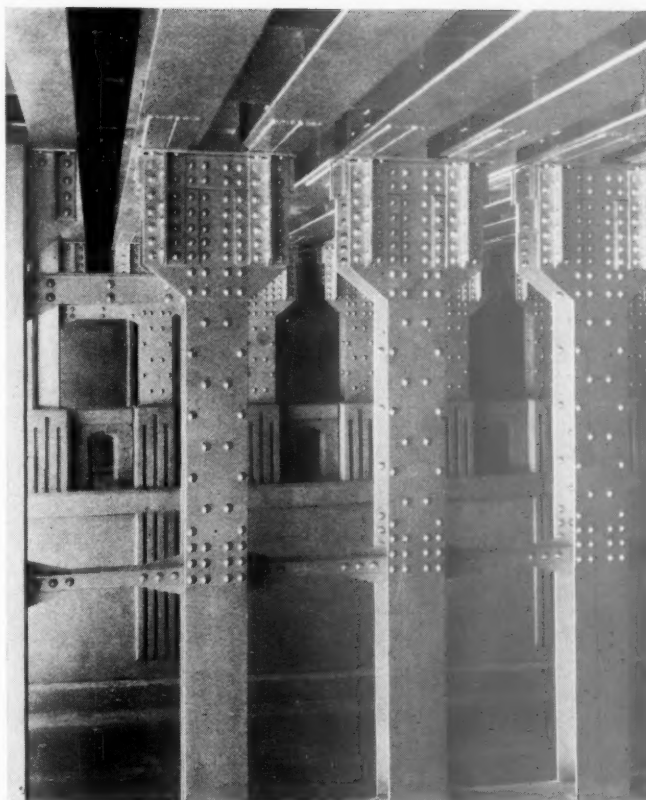


Bracket Connections of Beams to Abutment Columns—Note Manner of Encasing in Concrete

the abutment columns. To keep temperature stresses at a minimum, the columns were made free to rotate at the bottom.

Both structures were designed for a Cooper's E65 loading with 100 per cent impact, and assuming a 10-ft. transverse distribution of the load applied by each track. The analysis of the rigid frames was made by the method of moment distribution. All of the steel, including the rivets, used in these structures, is copper-bearing, containing the customary 0.2 per cent copper.

The deck was fabricated and erected in groups of four beams each, the deck plate, cover plates, and diaphragm being welded to the beams in the shop. The bridges were built in sections, in accordance with a grading program that provided for the raising of the



A View Under the Central Avenue Structure, Showing Columns in the Center of the Street in the Foreground and Columns at the Curb Line in the Background

roadbed to the new elevation, a couple of tracks at a time, and it was found that this type of structure was readily adapted to this plan.

Structure Was Tested

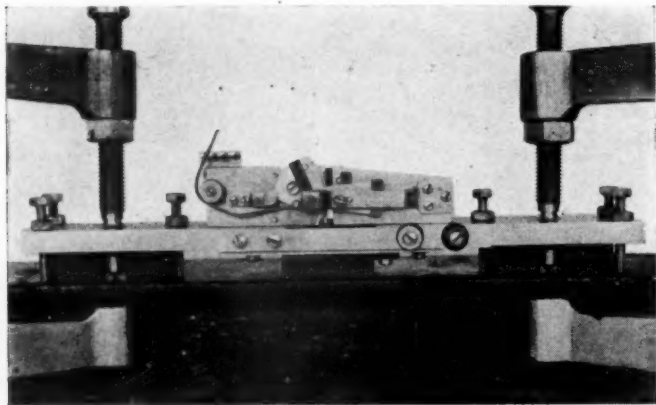
After the completion of the Central Avenue structure, it was tested under both static and moving load. A Santa Fe type engine with a Cooper's rating of E63 was stopped over the east roadway, in the position indicated on the longitudinal section, so as to produce maximum bending in the beams at the center of this span. Whittemore strain gage readings were taken on the bottom flanges of the beams at the center of the span, both with the engine on and off the structure, to determine the transverse distribution of the load.

It was found, as would be expected, that the stresses in the various beams decreased uniformly from a maximum in the beams under the rails to approximately 200



The Undercrossing for Tijeras Road

lb. per sq. in. in the sixth beam on each side of the center line of the track. The maximum recorded static live load stress at the center of the span in the beams under the rails, for the loading shown on the sketch, was 6,500 lb. per sq. in. The computed stress in the beams for the same condition of loading was 6,200 lb. per sq. in., based on the assumption that the load on one track is distributed over a transverse width of 10 ft., in accordance with the Specifications for Steel Railway Bridges of the American Railway Engineering As-



The Scratch Recording Strain Gage Developed by the Santa Fe

sociation. It would appear, therefore, that this assumption as to transverse distribution of load is about right for this type of structure and beam and diaphragm spacing. The maximum stress in the beams at the center of this span occurs when the engine is headed west, the computed stress on this basis being 7,400 lb. per sq. in.

Static stress readings taken on the under side of the deck plate showed that the plate was carrying its proportion of the stress. From the stress readings in the deck plate and on the bottom flange of the beams, it was possible to locate the neutral axis, which checked very closely the theoretical location. Stress readings taken in the columns under static load demonstrated that they were carrying moment, thus indicating that the structure was acting as a rigid frame.

Readings taken with a surveyor's level and rod showed that the static deflection of the beams under the rails was 15/64 in., with progressively smaller deflections under adjacent beams to practically a zero reading under the sixth beam on each side of the center line of the track.

Determine Effect of Moving Loads

To determine the effect of moving loads, both strain-gage and deflection records were taken on beams directly under the rails. The deflection records were taken with an instrument developed by the Santa Fe. The strain-gage used is an adaptation of the instrument used in the rail investigation under the direction of Dr. H. F. Moore, research professor of engineering materials at the Uni-

versity of Illinois, which was developed in turn from the De Forest scratch gage manufactured by the Baldwin Southwerk Corporation, Philadelphia, Pa.

One of the illustrations shows the strain gage clamped in position for recording the deformations in the top flange of a steel beam. In this device, the deformations are scratched to scale on a chromium-plated brass strip 1/4 in. wide by 1 in. long, by means of carborundum specks imbedded on a point that is pressed against the brass strip. The strip is mounted on a carrier that is moved through the arc of a circle by the wire spring, shown in the illustration, while the record is being made.

Sample records are shown of the deflections and flange stresses produced at mid span by a moving locomotive in the beams directly under the rails. The upper one is an enlargement of the deflection record for the beam under the left rail; the lower one is a photomicrograph of the scratch gage record of the flange stress in the beam under the right rail. The enlargements have been adjusted so that the stress produced by the locomotive at any given position as it moves across the span appears directly below the record of the deflection for the same position of the locomotive.

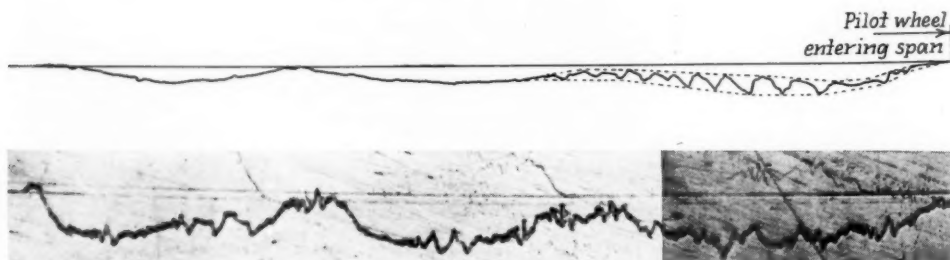
Effect of a Rail Joint

Considering the deflection diagram first, it will be observed that it is made up of three well-defined sags. The first one at the right was produced by the locomotive drivers and illustrates the vibration effect of the dynamic increment produced by the overbalance of the counterweights. The second and third sags represent the effects, respectively, of the front and rear trucks of the tender. The absence of vibration in the span under the tender is indicated by the regular outline for that portion of the deflection record.

Turning now to the scratch-gage record, it is noted that this embraces the same three well-defined sags that are present in the deflection record, but that the two records are otherwise unlike. The rather uniform pulsation of the span, due to the overbalance, is entirely absent, and the irregular vibration indicated is just as pronounced under the tender loading as under the locomotive.

This phenomenon is explained by the fact that the deflection diagram was taken on the beam under the left rail, which was continuous across the span, whereas the scratch-gage record was made on the beam under the right rail, which had a joint within the length of the span, and there was an appreciable gap in this joint at the time the test was made. Therefore the flange stress record shows the effect of the impacts produced as the wheels passed over this joint.

The conclusions reached from a quantitative analysis of the various tests have led to the conclusion that this structure is rigid, with a relatively small center deflection; that the structure acts as a rigid frame, with the columns taking bending moment; that the lateral distribution of load to the longitudinal beams follows closely the American Railway Engineering Association specifica-



A Sample of a Deflection Record of a Beam, Directly Above a Photomicrograph of a Flange Stress Record Taken for the Same Movement of a Locomotive Across the Span

tion; and that the provision made in the design for impact is conservative.

These two grade separations were included in the federal grade crossing program. The plans for the substructure and superstructure of the portion that supports the railroad tracks were prepared by the Santa Fe under the direction of G. W. Harris, chief engineer system; W. W. Kelly, chief engineer of the Western lines; and R. A. Van Ness, bridge engineer system.

The remainder of the plans and the co-ordination of all plans were handled by the New Mexico Highway Department, of which G. F. Conroy is highway engineer and E. B. Van de Greyn is bridge engineer. The Bureau of Public Roads was represented by J. A. Elliott, district engineer, and J. B. Robertson, bridge engineer. The structural steel was fabricated by the Missouri Valley Bridge & Iron Company, and F. D. Shufflebarger of Albuquerque, was the contractor.

Railway Material Costs Up 17 Per Cent in 12 Months

Graphic example of price trends in the experience of one road—Some supplies 50 per cent higher

EVIDENCE of the reason why railroads are interested in material prices, however dull the figures, and equally impressive proof that reports of large increases in materials are not mere talk, have been brought to light in the record of the average prices paid by one of the larger railroads for 68 classes of material in September, 1937, September, 1936, September, 1935, and September, 1933.

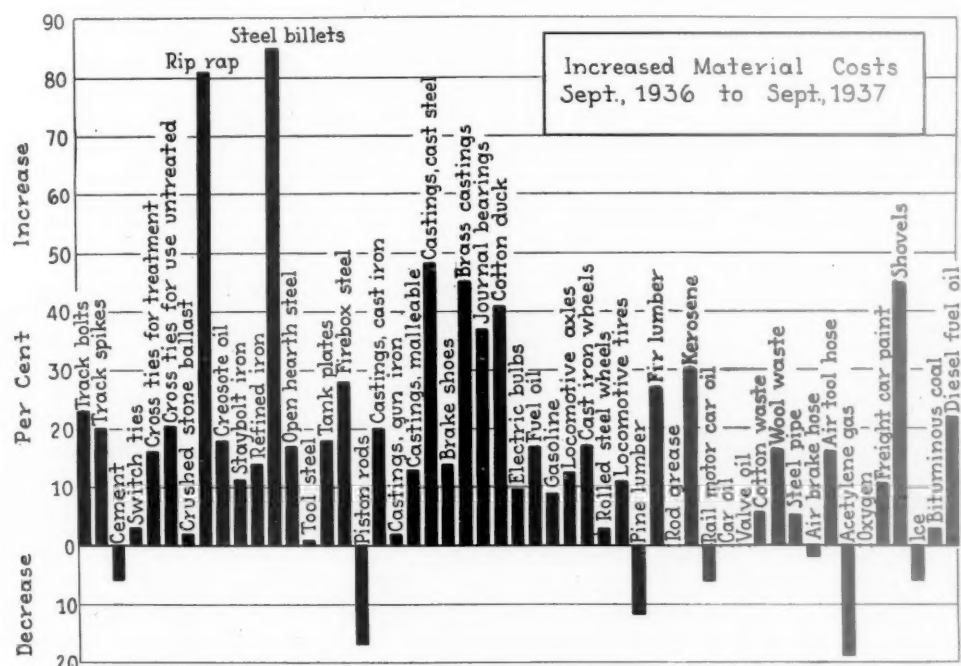
The figures do not pretend to represent what all the railroads paid for all their materials and supplies and are not accompanied by volumetric and other data with which to compute the weighed effects of price changes on railway expenditures. However, they deal with materials actually used by railroads and are the average prices, plus freight, obtained in a competitive market for the materials. The average prices in the several years are also reasonably comparable, with the possible exception of a half dozen items where the proportionate

amount of different goods or sizes may not have been uniform.

Index values of 39 commodities for which comparable data are available in each of the four years averaged 17 per cent higher in September, 1937, than the average of the index values of the same commodities in September, 1936. The same prices averaged 20 per cent higher than the corresponding averages in 1935, and 27 per cent higher than the corresponding averages in September, 1933.

If the expenditures of all the Class I railroads for materials and supplies during September total \$80,000,000, as expected, and if the increased prices paid by the one road are fairly representative of the increases paid by the other roads, it may be concluded that the railroads paid about \$10,000,000 more to obtain the materials and supplies purchased last September than the same purchases would have cost in September, 1936, about \$13,-

A Graphic Example of the Average Increases in the Costs of Representative Materials on One Road from September, 1936, to September, 1937



000,000 more than in September, 1935, and about \$17,000,000 more than in September, 1933. The figures are exclusive of any increased costs for new equipment.

Expenses Boost \$150,000,000

Using the same prices to indicate the changes in annual averages, it can be roughly stated that this year's purchases of materials and fuel and also equipment, which are expected at this time to total about \$1,200,000,000, will cost the railroads at least \$150,000,000 more than the same purchases would have cost in 1936,

In a few cases, the average prices paid by the one road in September were below those paid in the corresponding month of the previous year. Compared with an index value of 100 in September, 1936, the indexes in September, 1937, were 94 for cement; 83 for piston rods; 88 for pine lumber; 94 for rail motor car oil; 98 for steel pipe; and 81 for acetylene.

Some materials averaged less in September, 1937, than in September, 1933. This was true of crossties, piston rods, incandescent lamps, cast iron wheels, spruce lumber, motor car oil, acetylene, oxygen and ice. The exceptions were few, however, and by contrast numerous

Average Cost of Railway Material—One Road

Material	Unit	September, 1937						
		Sept. 1933	Sept. 1935	Sept. 1936	Sept. 1937	Per cent Sept. 1936	Per cent Sept. 1935	Per cent Sept. 1933
Bars, angle, and rail joints	Each	\$	\$	\$3.44	\$ . . . .	...	...	...
Bolts, track	Lb.	.038	...	.0413	.0507	123	...	133
Plates, tie	N.T.	...	...	43.48	...	...	...	...
Spikes, track	Lb.	.0284	...	.027	.0325	120	...	115
Wire fencing	Rod	...	.546	.5096	...	...	...	...
Cement	Bbl.	2.183	...	2.12	2.00	94	...	91
Ties, switch (to be treated)	Ft.	.0517	.034	.0395	.0406	103	120	79
Ties, switch (treated)	Ft.	...	...	.0591	.0611	103	...	...
Ties, cross (to be treated)	Each	.969	.722	.701	.816	116	113	84
Ballast, crushed stone	N.T.	.70	.80	.75	.77	102	96	110
Ballast, rip rap	N.T.	.50	...	.3717	.677	182	...	135
Oils, creosoting	Gal.	.0846	.055	.0868	.1023	118	186	121
Iron, engine and staybolt	Lb.	.0584	.061	.062	.0686	111	112	117
Iron, refined	Lb.	.0532	.055	.0553	.0629	114	114	118
Steel, billet	Lb.	.0342	.0294	.0265	.0491	185	167	144
Steel, open hearth	Lb.	.0223	...	.0251	.0294	117	...	132
Steel, tool	Lb.	.1145	.368	.2323	.236	101	64	206
Plates, 1/4 in. and over, tank	Lb.	.0187	.0257	.0212	.025	118	100	134
Plates, boiler and firebox	Lb.	.0227	.0243	.023	.0294	128	121	130
Rod forgings (loco.) main and side	Lb.	...	...	.0819	...	...	...	...
Castings, cast iron (including grates)	Lb.	.0372	.0397	.0412	.0496	120	125	133
Castings, gun iron	Lb.	.062	.0618	.0613	.0624	102	101	100
Castings, malleable iron	Lb.	.1031	.1299	.1393	.158	113	122	153
Castings, cast steel	Lb.	.0624	.0772	.0792	.1173	148	187	188
Brake beams (pass.)	Each	...	...	...	13.50	...	...	...
Shoes, brake	N.T.	40.11	43.34	46.10	52.23	114	121	130
Brass and composition castings	Lb.	.1357	.1283	.1415	.2062	145	161	152
Bearings, journal	Lb.	.1032	.0958	.1115	.1534	137	160	149
Cotton duck	Yd.	.6378	.626	.5169	.7307	141	117	115
Bulbs, electric	Each	.2202	.1827	.1607	.1766	110	96	80
Oils, fuel	Gal.	.035	.04	.0425	.05	117	125	142
Gasoline	Gal.	.076	.0943	.1116	.1213	109	129	160
Axles, (loco. driving)	Lb.	.0544	...	.0702	.0795	113	...	146
Wheels, cast iron	Lb.	.0116	.0091	.0091	.0106	117	117	91
Wheels, rolled and forged steel	Each	...	...	...	...	103	112	108
Tires, driving and trailer (loco.)	Lb.	.057	.0567	.0567	.063	111	111	110
Lumber, oak dimension (exclusive of ties)	Ft.	.035	.035	.0374	...	...	...	...
Lumber, finish, hard pine or fir	Ft.	.044	...	...	.0498	...	...	113
Lumber, pine or fir, dimension (exclusive of ties)	Ft.	.031	.0439	.0569	.0499	88	113	160
Lumber, spruce (dimension and boards)	Ft.	.0349	.0277	.0258	.033	128	120	95
Grease, rod, cup and D. B.	Lb.	...	.0925	.0925	.0925	100	100	...
Oils, kerosene or long time burning	Gal.	.0718	.062	.0634	.0825	130	133	115
Oils, rail motor car	Gal.	.569	.60	.55	.517	94	86	91
Oils, car	Gal.	.14	.1813	.18	.18	100	100	128
Oils, valve	Gal.	.2959	.34	.34	.34	100	100	115
Waste, cotton wiping	Lb.	.053	.0525	.0567	...	106	115	114
Waste, woolen packing	Lb.	.1425	...	.1425	.165	116	...	116
Pipe, wrought iron and steel	Ft.	.083	.1705	.1934	.203	105	118	240
Hose, air, 22 in. plain brake	Ft.	.35	.42	.3869	.38	98	91	108
Hose, steam, 24 in.	Ft.	...	...	...	.55	...	...	...
Hose, air tool	Ft.	.2111	.246	.35	.4104	117	167	195
Gas acetylene	Cu.Ft.	.0132	.0137	.0156	.0126	81	123	86
Gas, oxygen	Cu.Ft.	.0125	.011	.011	.011	100	100	89
Paints, freight mineral brown	Gal.	.65	...	.95	1.057	111	...	162
Fusees	Gro.	9.40	10.75	...	11.75	...	109	125
Shovels and scoops	Doz.	12.50	12.10	11.16	16.28	145	134	130
Torpedoes	Gro.	3.55	4.50	...	4.65	...	...	131
Ice	N.T.	4.673	4.934	4.626	4.366	95	89	93
Fuel, bituminous	N.T.	3.795	4.356	4.272	4.421	103	101	117
Fuel, anthracite	N.T.	...	8.28	...	6.65	...	80	...
Fuel oil (Diesel)	Gal.	...	.051	.0497	.0607	122	108	...

about \$175,000,000 more than the same purchases would have cost in 1935, and about \$200,000,000 more than the same purchases would have cost in 1933.

Key commodities which increased the most on the one road were track bolts, with an index of 123, as compared to 100 in September, 1936; track spikes, 120; crossties, 121; refined iron, 185; tank plates, 128; malleable castings, 148; brass castings, 145; cotton duck, 141; and shovels, 134. Some materials, however, averaged no higher in September than in September, 1936—for example, crushed stone ballast, tool steel, cast iron castings, spruce lumber, car and valve oil and oxygen.

commodities averaged more than 50 per cent higher last September than in September, 1933, when average prices were higher than in May, 1933. Tool steel cost the road 106 per cent more last September than in September, 1933. Malleable castings were 53 per cent higher; cast steel castings, 88 per cent higher; brass castings, 52 per cent higher; gasoline, 60 per cent higher; pine and fir lumber, 60 per cent higher; wrought iron and steel pipe, 140 per cent higher; air tool hose, 95 per cent higher; and freight car paint was 62 per cent higher. The average unit prices paid in September of each year and the corresponding index values are given in the table.

The Trend in Passenger Equipment

What the public demands and what the railways and car builders are doing about it

WHAT the public demands in the way of modern passenger equipment and what the railways and the car builders have done to meet this demand were thoroughly discussed in two papers presented at the Western Railway Club meeting at Chicago, November 22. The first speaker was H. W. Siddall, chairman, Trans-continental Passenger Association, Chicago, who discussed modern requirements and showed that, as a result of reduced rates, improved equipment, higher speeds and other important factors, the trend in passenger traffic has been reversed and, in the case of Western railroads, for example, twice as many passengers were carried in 1936 as in 1933.

The second part of the program, describing what the railways and the car builders are doing to utilize new car equipment materials, new designs and new comforts was presented in a paper by E. W. Test, assistant to the president, Pullman-Standard Car Manufacturing Company. Following Mr. Test's paper a talking moving picture was shown, illustrating the methods now being employed at the Pullman car works for building lightweight passenger cars of high-tensile, low-alloy steel.

Limited abstracts of the two papers presented in this program are given below.

Passenger Traffic Trends

By H. W. Siddall*

The subject of my talk has to do with the development of passenger traffic on the railroads and the extent to which new forms of passenger equipment have contributed to that development. [Mr. Siddall here traced the decline of passenger traffic prior to 1933 when drastic reductions in rates were made. He showed the demand for and favorable acceptance of air conditioning, higher speeds, modern equipment and unit streamline trains, most of the latter having been installed on western railroads with a notable increase in business and profits.—Editor]

To indicate the lure the streamline and super-speed trains have had in the development of passenger traffic during the past three years in western territory, an example might prove interesting. The Burlington had a streamliner in operation on their line between Kansas City, Mo., and Lincoln, Neb., via Omaha. Immediately that train was placed in service, it became extremely popular, and traffic on the Burlington between those important cities west of the Missouri river increased materially. After the train had been in service for a period of time, it was decided to use it on another portion of the line, for some purpose which is not important to be discussed at this time. A steam train was substituted, and although it made the same time as the streamliner between Kansas City and Lincoln, business immediately fell off. When the streamliner was restored to service, the passengers returned and used the rail service to the

same extent, and probably more than prior to the interruption in service. I am informed that a similar situation developed in connection with the operation of the Burlington between St. Louis and Burlington, Iowa—the "Mark Twain"—and in talking a couple of weeks ago, with a representative of the Boston & Maine, I found that the same situation resulted when it was necessary for that railroad to take its "Flying Yankee" out of service for a short period. In the case of the Boston & Maine, however, there was more difficulty in regaining the passenger traffic, after restoring the streamliner to service, than was true in the case of the Burlington between Kansas City and Lincoln.

I have not been able to obtain detailed figures from all railroads as to the amount of business they have secured with new trains, but there are a few items in connection with certain of the streamliners which should be of interest. For example, since the new equipment of the Santa Fe's "Super Chief" was placed in service on May 18, 1937, after a record-breaking run from Los Angeles of 36 hr. 49 min., all available space has been taken on each departure from Chicago and Los Angeles—and bear in mind that the only passengers carried on the train are those between Chicago and Kansas City on the one hand and California on the other; that is, no local intermediate traffic is handled on that train. Reservations on the "Super Chief" have already been made for departures as far in advance as April, 1938. This is similar to experience of the North Western, Union Pacific, and Southern Pacific in connection with the "City of Los Angeles" and the "City of San Francisco."

The two "Daylight" trains of the S.P., one in each direction, between San Francisco and Los Angeles, were placed in service early this year. In six months, the trains handled approximately 145,000 revenue passengers, or 785 daily.

The "City of Denver," between Chicago and Denver, carried more than 35,000 passengers from June 18 to November 30, 1936, earning approximately \$3 per train mile. Business since that time has increased materially, although I have no later figures to give you. The "400," between Chicago and the Twin Cities, has shown a steady increase since its inauguration on January 2, 1935, and even though faced with intense competition of its rival trains between Chicago and the Twin Cities, the "400" shows a substantial increase in monthly revenues over figures for a year ago. The "Zephyrs" between the same points were originally three-car units. They have been replaced with seven-car units, and the traffic is still increasing. The "Hiawatha" carried 400,000 passengers in the first year and one-half of its existence, or an average of over 700 daily. Average earnings per train mile, the first year of operation, were as high as \$2.98. The original "Hiawathas" consisted of seven cars each, but two cars have been added, so the regular consist is now nine cars.

Similar results were obtained when the "Green Dia-

*Chairman, Transcontinental Passenger Association, Chicago.

mond," the "Abraham Lincoln," the "Ann Rutledge," and the "Rockets" were placed in service. To indicate the continued popularity of these trains, I will call attention to one example: The "Abraham Lincoln," on the Alton between Chicago and St. Louis, was placed in service July 19, 1935, and was popular from its inception. Yet for the four months of July, August, September and October of this year, the "Abraham Lincoln" carried 61 per cent more passengers than it handled in the first four months of its operation in 1935. Of course, there is more space in the train now than originally, but it is now being operated practically at capacity. It was the success of the "Abraham Lincoln" that prompted the placing in service of the "Ann Rutledge."

Other Factors Than Streamline Trains

But there are other things which the railroads have done for passengers besides making low fares, providing air-conditioned equipment, and building streamline trains.

First, there is the matter of speed. The United States now has a greater number of trains scheduled at speeds over 60 miles an hour than any other country in the world, and more trains with daily schedules requiring speeds of 80 miles an hour or more. Several trains are capable of speeds of over 100 miles an hour. Practically 12 hours have been taken off the running time between Chicago and Denver, and 14 hours between Chicago and the Pacific Coast, with similar reductions in running time between many other cities. These are reductions made only during the past two or three years; the reduction in the time of present schedules as compared with those of 10 years ago is even greater.

The next item is coaches. Deluxe coaches have been built, with reclining swivel seats, large dressing rooms for both men and women, large windows, indirect lighting, proper temperature in summer and winter, new-type floor coverings, hot and cold water.

Another item is lounge cars. Open-end observation cars in many instances have been supplanted by full-length lounge cars having every modern refinement, including bars, indirect lighting, the latest type and coloring in carpeting, upholstering, etc., the interiors of the cars being painted in up-to-date shades. These cars provide more lounge space and are suitable for head-end, rear-end, or center-train operation.

Another feature is offered in large, bright dining cars, with meals that cannot be duplicated elsewhere, either as to price or as to quality. Several additions have been made to meal service, to make it attractive to all classes of passengers and to meet the pocket-books of all. Economy plate-type meals are served. "Off the tray" service is given in coaches. Children's meals, at reduced prices, are available. And dining-car service is supplemented by so-called club features, such as luncheons, taprooms, snack cars, tavern cars, etc.

Safety Still of Primary Importance

Still another innovation is the operation of coach and tourist sleeping-car trains, with no standard sleeping-car service given. The first of these train was the "Challenger." The "Challenger" was followed by the "Scout" and the "Californian." The special features of these trains are special coaches for women, stewardesses or registered nurses, dimming of lights in coaches at night, free pillows, adjustable seats, inexpensive meals and lounge-car service. The popularity of these innovations is unquestioned, and is evidenced by the large increase in transcontinental passenger traffic, which is the par-

ticular traffic catered to by these special types of coach-tourist trains.

In listing the various services given to passengers, I have said nothing about safety, but that is one of the strongest talking points the railroads have in the solicitation of passenger traffic. For example, taking the average record for the past seven years, and taking into consideration the passengers one mile handled by the railroads during that period, it can be shown that a given passenger traveling at a rate of speed comparable to that of our fastest trains, would have to ride continuously, night and day, for 5,000 years before he would meet death in a train accident—and that is quite a ride!

I have mentioned the low fares in western territory, and there is no necessity for going into detail regarding that item—except to bring out one point which is a strong talking point and favorably received by the traveling public; and that is, that the western railroads offer fares to meet every situation. They have low coach fares for the economical; tourist sleeping-car fares, which are slightly higher, for those who require better service than coaches but cannot afford standard sleeping-car service; and they have the higher, or first-class fares, applying in standard sleeping cars and parlor cars.

How the Public Has Responded

From what I have said, it should be clear what the public demands and what the railroads have done to meet that demand. I can show briefly the response of the public. In 1936 the western railroads handled twice as many passengers as in 1933. They still have a long way to go, however, to regain the traffic they formerly enjoyed. For example, in 1936 (and that was far from a peak year) Class I railroads of the United States carried 862,000,000 revenue passengers, while in 1933 they carried but 490,000,000 revenue passengers. This means that, with the progress made during the past three or four years, the railroads have done well, but their job is only partially finished. They must continue to make improvements, and must exert even greater efforts in developing passenger traffic—particularly so because under present conditions and probably for some time to come, the cost of operation and the cost of materials and supplies will be constantly increasing, and to offset those increased costs, the revenue gains must be far greater in the next four or five years than they have been in the past four or five years, even though during the past four years the western railroads have felt that they have done a creditable job with their passenger service.

What the railways of tomorrow will provide is difficult to predict, as there are so many factors involved. Suffice it to say that, if the railroads are permitted to adjust their charges to the extent they deem necessary, and if the competitors of the railroads make their charges commensurate with the cost of their operation, the railroads will continue to be operated under private ownership and, under private ownership, will continue to make rapid strides in the development of passenger service.

Trends of Equipment Design

By E. W. Test*

In reviewing the history of railroad development in this country, it is difficult to find any other three or four-year period of time which has been more productive

* Assistant to President, Pullman-Standard Car Manufacturing Company, Chicago.

of new types of transportation vehicles for passenger train service than during the period from 1933 to the present time.

There are now in operation or on order for early delivery 55 light-weight trains comprised of 484 cars. In addition there are a large number of light-weight cars built for use either in solid trains or mixed with conventional cars, so that the total number of light-weight passenger-train cars built or on order at the present time is 1,067 for Class I railroads operating in the United States.

New Car Types Created Numerous Problems

The builders of these light-weight cars have had a real problem in endeavoring to produce them promptly. These new types of cars required complete new designs covering constructions very different from previous standards and incorporating new materials assembled by new machinery and shop methods. The new designs created exceptionally heavy demands on the engineering departments, making it necessary for the builders to reach out for engineers and draftsmen and the demand was so great for these that the supply was soon exhausted and it was necessary to get inexperienced men and educate them in the designing of cars.

Prior to 1933 car designs, while not standardized, did incorporate a good many standard practices and quite a number of features which were standard to a great many cars. However, streamlining, articulation, tight-lock couplers, improved draft gears, easy riding trucks, improved air brakes, new types of vestibule closures, disappearing steps, head-end electric power, dehydrated windows, a new style of heating arrangement in combination with air conditioning systems, which were also quite new—all of these things required development and in many cases sample set-ups in the shops.

In addition to these features which might be called the necessities the architectural and interior appointments constituting the decorative treatment assumed large proportions; also special plans of interiors involving novel innovations, such as taverns, bars, lunch-counters, improved and novel lighting arrangements, including some striking effects, scientifically developed, elaborate telephone and radio layouts, new styles of seats and other furniture, and new types of sleeping accommodations. It has seemed that, as each train has been produced, there has been an effort to surpass everything that has gone before in the treatment of interiors.

The fact that the cost of all these features has increased by leaps and bounds has not deterred the railroads in their efforts to make each succeeding train the finest and most deluxe ever built, so that today the costs per car are from two to three times as high as the cost of cars for corresponding service built five to ten years ago. [Mr. Test here described the relative advantages as car structural materials of aluminum alloys at 35 cents a lb., stainless steel at 40 cents a lb., and high-tensile low-alloy steel at 4½ cents a lb.—Editor].

Today there are many trains built of each of the three materials—aluminum, stainless steel, and high-tensile low-alloy steels. Their cost when fabricated into car structures should line up in the following order: Stainless steel highest; aluminum second, and high-tensile low-alloy steel third, or cheapest. The weights are in the following order: Aluminum, lightest, and as between high-tensile low-alloy steel and stainless steel, when of equivalent strength, there is practically no difference, though there is a slight edge in favor of the high-tensile low-alloy steel, because of its higher modulus of elasticity.

In order for the builders to produce trains of stainless steel and high-tensile low-alloy steel, it has been necessary to develop to a high degree both spot and arc-welding. Spot-welding is under the control of devices which regulate the time, pressure and current to a very high degree of accuracy, thus eliminating the human element entirely after the controls have been properly set. Arc-welding is out in the open so that it is easily inspected for quality of workmanship. The welders, however, are carefully trained and have to pass a satisfactory test similar to the one required by Hartford Steam Boiler Inspection before they are accepted as qualified welders. It has been found, however, that it is easier to train men for welding jobs than it is to train them to do good riveting.

Possible Aggregate Weight Saving

From questions which have been asked me it is apparent that there is a misconception on the part of many regarding the amount of weight reduction that can actually be accomplished by the car builder in utilizing the new materials and modified designs of car structures. The use of aluminum, stainless steel, or the moderately priced alloys is confined largely to the car shell, made up of the underframe, sides, ends and roof. The weight of this portion of one of the older conventional cars is approximately 55,000 lb. The total weight of the average conventional car, made of low-carbon steel—there is quite a variation in car weights—would probably be between 155,000 and 160,000 lb., with air-conditioning equipment, so that the weight of the shell is approximately one-third of the total weight of such cars. One of the newer shells built of alloy steel, either stainless or any one of the types of the moderately priced alloys, such as Cor-Ten, weighs approximately 25,000 lb., so that a saving in shell weight of about 50 per cent can be effected. In other words, about one-sixth of the total weight of the car has been saved in the new design. An aluminum shell is about 21 per cent lighter than a steel shell and weighs approximately 20,000 lb., so that, if aluminum, which permits lightest structure of all, is used, we can save approximately 60 per cent of the weight of the conventional shell, or one-fifth of the total weight of the car.

A good many other things have to be done besides lightening the shell structure and a good many of these things are in the hands of the railroads and of manufacturers other than car builders. As for example, the specialties, design of trucks used, type of interior finish selected, architectural designs of interiors which become serious because of variations in weight—I have in mind one in particular which added 3,000 lb. per car—kind of furniture, etc. If the desire for light-weight dominates the design of the car throughout, including all appurtenances, the car builders can produce cars of equal safety with previous standard cars and with all the necessary comforts and facilities which will weigh about 65 per cent as much as corresponding cars of conventional type of construction.

Use of Articulated Construction

Questions are sometimes asked about the advantages and disadvantages of articulated cars. Articulation has been used largely to save weight, but in the earlier light-weight trains it had an additional advantage of promoting better riding than was achieved with conventional equipment. Since that time, however, there have been

(Continued on page 797)

The New Haven Installs Five Self-Service Grill Cars

Table d'hote combinations and a la carte service at popular cafeteria prices—Cars seat 57 persons

AN innovation in dining service is being made by the New York, New Haven & Hartford with the delivery by the Pullman-Standard Car Manufacturing Company of five self-service grill cars. The cars will provide the same range of meal service which is customarily rendered by a cafeteria and will seat 57 persons. The facilities for the preparation and serving of food are located at the middle of the car, with a wide aisle along one side. The grill counter is accessible from this aisle. Beyond one end of the grill counter is a separate section housing the soda fountain-bar where ice cream, soft drinks and liquors are served. Beyond the other end of the grill counter is an enclosed dish-washing compartment with an open shelf on the aisle side through which used dishes are passed.

The service counter is provided with complete and ingenious facilities for grill service and for the preparation and serving of a variety of sandwiches and cold dishes. The cooking facilities include a charcoal grill with forced draft and ventilation by louvers in the wall immediately back of it, through which all vapors and odors are withdrawn. Air for the draft is taken from the brake pipe, and stored in a reservoir at reduced pressure. There is a pressure vegetable cooker and a coffee urn in which there are separate units for the percolation of the coffee and its storage for use. The coffee is piped to faucets at each end of the service counter. Mechanical dish-washing facilities have been especially adapted to the limited space requirements in these cars.

The cars are staffed by six persons. There is one counterman, a bar steward and a dish washer. A hostess and two assistants are in attendance in the dining room.



The Self-Service Counter in the Middle of the Car—The Dish-Washing Compartment Is in the Left Foreground

The assistants are posted near the grill counter and bar and will carry patrons' trays to the tables, if desired.

These cars are intended to supplement, rather than to replace, dining cars in the passenger trains of the New



The N. Y., N. H. & H. Grill Car, Looking Toward the Bar

Haven. They are provided particularly to serve the large number of coach passengers who are not now attracted to the dining cars and will provide meals at popular cafeteria prices. Typical meal combinations and prices are as follows: A breakfast, consisting of orange juice, bacon and egg, roll, butter and coffee, 35 cents; a luncheon, consisting of a broiled lamb chop, mashed potatoes, string beans, roll, butter and pie 60 cents. A 60-cent combination dinner consist of fried chicken, French fried potatoes, green peas, roll, butter, ice cream and coffee. The prices for sandwiches and a la carte service are on a comparable scale.

The cars are of the same construction as the light-weight streamline passenger coaches, the first of which were received from the same builder by the New Haven in December, 1934. They differ, however, in that there are no vestibules and the interior of the car is 82 ft. long.

An attractive interior has been achieved by the skillful use of gray and Chinese red. The walls and ceilings are in gray, with a Chinese red stripe between moldings at the base of the ceiling and a bright metal molding above the windows. The seats, upholstered in red leather, are arranged along the sides of the car, with tables placed permanently in front of them. The tables, at each of which two persons may be served, have welded tubular frames, with cadmium finish, and Formica tops in Chinese red with satin silver striping and edge trim. A receptacle of a plastic material is fitted to the outer edge of each table, in which will be placed sugar, salt, pepper, etc. The windows are fitted with Venetian blinds and pleated serge drapes. Both are pearl gray with red trim. On the walls at each end of the car are composite photo murals depicting various scenes typical of New York City and New England.

In relief, on heavy plate glass in the panel below the grill counter, is an outline map of the New Haven shore line, accompanied by symbolic illustrations of a clipper ship, a whale and, within the limits of the shore line, a group of trees. Across the center of the panel, dominating the whole, is depicted one of the New Haven's streamline trains. The use of indirect lights behind the glass lends brilliancy and an illusion of depth to the figures in the panel.

Like the new coaches, the cars are air conditioned with center duct distribution and have the spot ray type of ceiling illumination, spaced as in the coaches.

The Trend in Passenger Equipment

(Continued from page 795)

improvements made in trucks, draft gears and couplers, the Tite-Lock coupler having come to the front so that today equally as good riding qualities can be obtained without resorting to articulation.

In this connection it might be of interest to note that the weight per passenger carried in articulated cars is approximately the same as the weight per passenger carried in non-articulated cars, the reason being that articulation requires shorter cars because the distance between truck centers is the same in both cars and we lose the benefit of the over-hang for revenue-carrying space.

Standardization the Most Important Problem

The most important problem affecting car design and construction that is before the railroads today is standardization. We are all familiar with what standardized

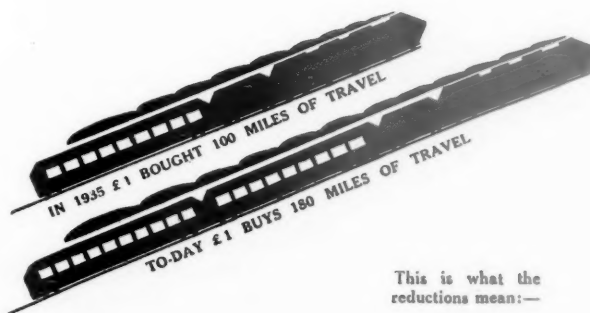
designs have done to the cost of producing automobiles and, while we may not expect that railway cars will all be of the same plan of interior arrangement, I believe we can hope for standardized structures, interior finish, except for decoration which can be applied on the finish, vestibule closures, disappearing steps, coupling arrangements, air brakes, running gear, and a great many other features which should at least be interchangeable for application. The effect of the universal use of more and more standard parts is far reaching, as it makes it possible for the manufacturers to tool up for large quantity production, it enables them to purchase materials when the market is right, and to get a higher rate of production out of the operators who become more skilled. Standardization also will reduce the amount of engineering required for each job which has been no small item during the last several years and eliminates a great quantity of patterns, templates and dies which are usually special for each individual car job. All of these things will have a very favorable effect on the cost of building cars and, therefore, reduce the investment which the railroads must make on which they figure their earnings.

* * *



Railway fares have been greatly reduced.

Your money will now go much further in the purchase of railway travel.



This is what the reductions mean:—

Between Melbourne and	Miles from Melbourne	RETURN FARES—					
		1st Class			2nd Class		
		1935	1936		1935	1936	
		Ordinary Return	Day Return	Month Return	Ordinary Return	Day Return	Month Return
Geelong	45	17/4d.	7/2d.	9/7d.	11/6d.	5/9d.	7/8d.
Bendigo	100	40/4d.	16/9d.	22/5d.	26/10d.	13/5d.	17/11d.
Stawell	150	55/10d.	24/6d.	32/7d.	39/2d.	19/7d.	26/1d.
Wycheproof	190	74/10d.	—	41/8d.	50/-	—	33/4d.
Nhill	248	98/6d.	41/1d.	54/8d.	65/8d.	32/10d.	43/9d.
Mildura	351	123/2d.	—	68/8d.	82/4d.	—	54/11d.

THE VICTORIAN RAILWAYS

FOR CHEAP, SAFE AND DEPENDABLE SERVICE

How the Victorian (Australia) Government Railways Advertise Reduced Passenger Fares in the Newspapers

Ex Parte 123 Hearings Begin

Rate increase case plays to packed house at opening session in Washington—Several railroad executives testify

WASHINGTON, D. C.

THE Interstate Commerce Commission's Ex Parte 123 rate-increase hearings got under way before a "standing-room-only" crowd at Washington, D. C., on November 29. Long before the 10 a.m. opening hour all seats in the hearing room—one of the commission's largest—were occupied, and standees filled much of the available aisle space. Such an audience, including as it did the chief executives of several railways and prominent shipper representatives, comprised a fitting turnout for the premiere of this so-called Fifteen Per Cent Case, 1937, which the Association of American Railroads' preliminary publicity called "one of the most important that has been brought before the Interstate Commerce Commission in recent years"; and which, A.A.R. President J. J. Pelley said, finds managements "more earnest and more united" than ever before in the face of railroad financial conditions "probably worse than at any time in history."

Presiding was Commissioner Clyde B. Aitchison who heads the new Division 7 which the commission created to handle the case; with him sat other members of this division—Commissioners Claude R. Porter and Marion M. Caskie—and eight state commissioners. On the afternoon of November 30 the commission opened in the hearing room across the hall a "side-show" with Commissioner Clarkie presiding over sessions devoted to presentations of water carriers who have become parties to the proceeding.

Disposing of the Preliminaries

Disposition of various motions and petitions was the first order of business at the main hearing's opening session, the initial hour being virtually gone before J. M. Souby, assistant general counsel of the Association of American Railroads, had made his opening statement and introduced Mr. Pelley as the first railroad witness. Among the preliminaries was the petition of Representative White of Idaho on behalf of the Public Utilities Commission of that state for a postponement until "at least January 5, 1938"; in overruling this Commissioner Aitchison said that it was the expectation of the commission that the Idaho regulatory body will have a reasonable time to prepare for its participation. Next motions to dismiss, filed by representatives of shippers of various commodities, were overruled, while various additional rail and water car-

riers were made parties to the proceeding. Included among the latter were the Bangor & Aroostook, the Inland Waterways Corporation, the Mississippi Valley Barge Line and Seatrain Lines; also, some switching railroads.

John S. Burchmore, representing the National Industrial Traffic League, requested a 30-day recess after the completion of the railroad testimony in order to permit the shippers to prepare their case. A great many League members, he said, "are really not sure" what their position will be—much depends upon the commission's action with respect to tariffs filed in accordance with the Ex Parte 115 decision on commodities not specifically dealt with in that proceeding.

I.C.C. and Shipper Committees Formed

Later W. H. Day, chairman of the N.I.T. League executive committee, introduced the resolution on Ex Parte 123 which was adopted at the League's annual meeting in Chicago on November 18. This resolution, reported in the *Railway Age* of November 27, asserted the League's understanding of the railroads' need for revenues, stated that no position would be taken in the present case and, while requesting the 30-day adjournment after railroad testimony, urged that the proceedings be expedited. A similar request for adjournment after the railroads' direct evidence is all in was made by John E. Benton, counsel for the National Association of Railroad and Utilities Commissioners.

Suggesting that "if we are going to get through this proceeding without its being a burden on everyone" there must be "a very high degree of co-operation" between various participants, Commissioner Aitchison invited all interests in opposition to the rail and water carrier proposals to form some sort of an organization to deal with general matters. Mean-

while, he revealed, the commission has set up a committee of its own staff which may be consulted concerning the case. Examiner William J. Koebel is acting chairman of this I.C.C. committee, which will be headed by Examiner Hosmer when the latter, now on sick leave, resumes his duties. Acting promptly upon the presiding commissioner's suggestion, representatives of shippers, during the first day's noon recess, formed a steering committee with R. C. Fulbright as chairman and with 24 members representing as many different commodi-

Pullman Case Is Ex Parte 125

The Interstate Commerce Commission has docketed as Ex Parte 125, Increased Pullman Fares and Charges, 1937, the application filed last week by the Pullman Company for authority to make a 10 per cent increase in all of its sleeping and parlor car rates. The application stated that 27 per cent or \$1,593,254 of the proposed annual increase would go to the railroads, thus leaving Pullman an estimated \$4,307,688.

Increased cost of operation is cited as the reason for the rate increase proposal. Wage payments rose \$3,247,991 in 1937; annual taxes, including social security and retirement taxes, are up \$1,509,062 and the cost of materials and supplies \$1,099,868.

ties. Later there were appointed sub-committees on cross-examination, distribution of exhibits and arrangements for further hearings.

In the latter connection Commissioner Aitchison had announced that the schedule of sessions at other points would be determined when the commission sees how the Washington hearing shapes up. Various requests have been received for sessions in other cities.

Among other preliminaries was the reminder by Commissioner Aitchison that "we are here to receive facts—this is not the time for argument—that will come later"; and the request of Benjamin C. Marsh, representing the People's Lobby, Inc., asking the commission to invite the participation of the consumers' counsel of the Department of Agriculture. To which Commissioner Aitchison replied that "the gentleman knows his statutory duty, and if it calls upon him to come here and oppose, I suppose he will."

A Revenue Case—"Pure and Simple"

In his opening statement Mr. Souby said that 325 railroads are involved in the proceeding which he called "a revenue case, pure and simple." It was brought about by two influences—increasing costs and declining rates—which have reduced the spread between revenues and expenses nearly "to the vanishing point," and "certainly far below the danger point." He added, however, that the case is not submitted as an "emergency" case in the technical sense of "emergency" as defined by the commission in the past, i.e., in the sense that it calls for temporary relief only.

In addition to that of Mr. Pelley the railroads offered the testimony of Dr. Julius H. Parmelee, director of the A.A.R. Bureau of Railway Economics, Fairman R. Dick, A.A.R. advisor on finance and credit, and a number of executives of individual lines. The latter were to be followed in turn by traffic representatives from Western, Eastern and Southern territories. Many of the railroad witnesses stressed the important role of the railroads in the national economy, Mr. Pelley calling them "normally a billion-dollar-a-year customer of all industry"; Dr. Parmelee found their retrenchments having "serious economic effects on the nation"; and President Ralph Budd of the Chicago, Burlington & Quincy, the first of the individual-line executives to testify, saw a strengthening of railroad credit followed by expenditures of \$900 million "in each of the next several years."

Adequate Revenues Would Stimulate Industry

"Adequate railroad revenues would do much to stimulate industry and employment in this country," said Mr. Pelley. "The dollars which railroads spend for the thousands of things they buy, like the dollars which they spend in payrolls, spread over the whole United States and go into almost every industry. With adequate revenues, we may reasonably expect a revival of railroad buying, and I know of no greater single stimulus to industry and employment."

"The railroads are completing their seventh consecutive lean year. Ninety-six railroads are in the hands of receivers or trustees, thirty-six of them Class I railroads operating 70,000 miles. Other systems are threatened with bankruptcy."

"The cause of the present financial distress is increased operating costs, over which the railroads have little or no control, and decreased earnings per ton-mile and per passenger-mile. Since May 1, 1933, which may be regarded as about the bottom of the depression, prices of things we use have increased 40 per cent, our taxes

have increased 25 per cent, our wages have increased 18 per cent. During the same period, revenues for carrying a ton of freight one mile have decreased 10 per cent and revenues for transporting a passenger one mile have decreased 20 per cent.

"To handle the traffic of the year ended June 30, 1937, at the level of prices, wages and taxes now prevailing, would cost us \$665,000,000 more than it would have cost to have handled the same traffic at the 1933 level of prices, wages and taxes. Because of economies in operation, together with an increased traffic, we were able to keep the unit cost of producing transportation down to the 1933 figure in spite of these mounting prices, and even to improve on it slightly in 1936. The unit cost of producing transportation is now running ahead of that of last year, however, because of a rise in prices and costs beyond anything which could be met by any economies which could possibly be made at this time.

Asking \$98 Million Less Than Increase in Costs

"On the basis of the volume of business for the year ended June 30, 1937, we estimate the increases in rates and fares requested would yield \$517,000,000 per year. The increases recently granted by the Interstate Commerce Commission in Ex Parte 115 should yield \$50,000,000, making a total of \$567,000,000, or \$98,000,000 less than the amount of our increased annual expenses because of rising prices since May 1, 1933."

Dr. Parmelee said that the present situation results from the fact that the railroads are being pinched between declining levels of freight and passenger rates on one hand and rising prices, higher wages, and mounting taxes on the other hand. "The carriers," he added, "are reducing forces and are curtailing their purchases of equipment, materials and supplies. They are forced to do this because of the financial condition in which they find themselves. This retrenchment has a serious economic effect on employment, on the manufacturers of railway supplies and their employees, and on general business activity."

"The railroads in 1927 to 1930 installed more than twelve times as many locomotives a year, nearly five times as many freight cars, laid nearly three times as many tons of new rail, and laid nearly twice as many cross ties, switch and bridge ties as during the average year of the depressed years 1931 to 1936. Capital expenditures for the two years 1929 and 1930 averaged \$863,164,000 a year. The average declined appreciably during the five years 1931 to 1935 when capital expenditures averaged only \$206,813,000 a year. While there was an increase to \$298,991,000 in 1936, that amount was far below the pre-depression average. These sharp reductions in railway expenditures undoubtedly had their unfavorable effect on employment and on the productive activity of many other industries."

"Similarly, the trend of railway purchases of fuel, materials and supplies declined sharply during depression years, and has not yet returned to anything like a normal level. Railway purchases averaged \$1,184,017,000 a year in 1929 and 1930, but this average declined by one-half to \$559,820,000 a year in the five years 1931 to 1935 and showed only a partial restoration to \$803,421,000 in 1936."

Equipment Orders at Standstill

"On the other hand, the increase in railway revenues in 1936 and the first half of 1937 made it possible for the carriers to increase the number of their own employees and also increase their orders for new equipment

and for materials and supplies. This upward trend has now reversed itself. Equipment orders are at a standstill. Railway purchases have also been curtailed."

Dr. Parmelee said that because of declining traffic and the resultant decrease in revenues, the number of railway employees decreased more than 58,500 men from July 15 to October 15, this year. This decline, he said, was much greater than seasonal.

"The highest rate of return the railroads have earned on their investment in any of the seven years from 1931 to 1937 was 2.57 per cent; the lowest was 1.25 per cent; the average rate for the period was less than two per cent," he continued, "In three of these seven years, the industry failed to earn its fixed charges.

"Whereas in 1930 the railroads of this country reported a net income after fixed charges equivalent to 9.9 cents per dollar of operating revenue, this ratio declined to 4.1 cents per dollar in 1936, and further declined to 2.4 cents per dollar in the first nine months of 1937. Last year nearly forty per cent of the railway mileage of this country operated at a deficit. This proportion has since increased, so that nearly one-half operated in the red in the first eight months of 1937. Increased costs of operation and reduced revenues resulting from declining traffic, which so far in the fourth quarter has been consistently below the corresponding period in 1936, affords little optimism for any improvement taking place in the latter part of the current year.

Dr. Parmelee estimated that because of higher costs of materials and supplies, fuel, wages and taxes, operating costs are now \$664,789,000 greater than in 1933. The Interstate Commerce Commission in its decision in Ex Parte 115, he said, allowed increases in certain commodity rates amounting to fifty million dollars, which leaves \$614,789,000 as the amount of additional revenue that is needed. Of that amount, Dr. Parmelee said, it is hoped to realize \$47,502,000 from increased passenger fares, which leaves \$567,287,000 as the amount that would be needed from upward adjustment in freight rates and charges.

Average Rate Rise Would Be 12.8 Per Cent

"The amount of additional freight revenue needed, if the increased costs are to be met," Dr. Parmelee said, "represents an increase of 15.7 per cent. The railroads, however, are not seeking freight rates to cover this amount, but if their petition is granted, the average increase would only be 12.8 per cent. This falls below 15 per cent because of the maximums placed on certain groups of commodities specified in the carriers' application. Granting of the railroads' application for an increase in rates would only restore the level of freight rates to that which existed about 1930 and passenger rates to the level that existed in 1933. In other words, the effect of such an increase would be to restore about forty per cent of the loss in freight rate levels and about 15 per cent of the loss in passenger fare levels since 1921.

Dr. Parmelee said the railroads are operating at the highest level of efficiency and economy in their history. "This level," he added, "has been raised even during the seven years of depression. Train speed has been increased to the highest average ever attained. Fuel consumption per unit of traffic has been cut by a third since 1921. Operating facilities and methods have been modernized in every possible direction. These increases in efficiency and economy have enabled the railroads to reduce their rates with subsequent savings to the shipping and traveling public."

The witness went into considerable detail as to the

reasons for the increased cost of operation that has taken place since 1933. Due to an increase of approximately 38 per cent in prices, he said, cost of materials and supplies of all kinds, other than fuel, used by the railroads is now \$197,154,000 greater annually than in 1933. At the same time, increased cost of coal, as a result of higher prices, is \$52,703,000 above 1933. "The prices for coal," Dr. Parmelee added, "do not include any estimate as to the amount by which further price increases may take place as the result of orders by the National Bituminous Coal Commission, fixing minimum prices in the various producing areas or districts." He also estimated that the fuel oil bill is now \$25,467,000 or 73 per cent greater per year than four years ago and that payroll taxes levied on the Class I railroads under the Social Security Act and the Carriers' Taxing Act of 1937 amount to approximately \$111,000,000 per year.

Following Dr. Parmelee's testimony Wilbur LaRoe, representing the American Paper & Pulp Association and the Traffic Conference of the Paper Industry, requested data on individual roads similar to that which an exhibit introduced by Dr. Parmelee had given for the industry. Upon assurance from Mr. Souby that the request would be taken up with the railroad committee in charge of the case Mr. LaRoe delayed asking the commission to require that the data be furnished.

Fixed Charges Less Than in '90's

Present impaired credit of railroads is not caused by too much debt, but by too narrow a margin between income and operating expenses, said Mr. Dick. The railroad industry's real difficulty, according to his view, "is not in an increasing burden of fixed charges, nor in overexpansion of plant or capitalization. In proportion to revenue, in fact, interest on debt and other fixed charges of railroads today are no higher than they were during the years from 1900 to 1907, when railroads enjoyed their highest credit. Actually fixed charges are 40 per cent less than they were in the depression years of the 1890's. Out of the dollar which the shipper pays for railroad service today, 40 per cent less goes to the holders of railroad bonds than went to the holders of bonds 40 years ago.

"The burden of debt on railroads, in proportion to the total investment in the property, is less today than ever before, at least since general figures began to be compiled in 1890. In 1894, railroad debt was 54½ per cent of railroad investment. In 1906, when railroad prosperity and credit was at its highest, debt was 57½ per cent of investment. Today it is 44½ per cent, before allowing for depreciation, (the figure comparable to those of earlier years) or 49.9 per cent after depreciation.

Narrowing Spread Causes Credit Troubles

"The true cause of today's impaired railroad credit is in the constantly narrowing spread between revenues and expenses. As far back as 1901, the railroads earned enough net income to have met today's fixed charges. But, while gross revenue has increased only a little more than two and one-half times since 1901, wages and other expenses have increased nearly three and one-half times, and taxes have gone up eight times.

"That railroads have kept pace with rising costs as well as they have is due to the fact that they have been leaders in the development of mass production through continually increasing investment in modern plant. This investment has made possible better service to the public, lower costs, and a higher standard of living for employees. The railroads have been able to do this, in the

past, because they have had a sufficient margin of earnings for sound credit.

Mr. Dick presented to the commission the results of a study of railroad investment, earnings and costs since 1890. The average investment per mile in 1890, he said, was \$52,000. This had increased to \$95,000 per mile, after depreciation, by 1930. The economic saving as a result of increased investment in better railroad plant, he pointed out, was shown in the fact that while the average of commodity prices today is 44 per cent above that in 1890, the average revenue for hauling a ton of freight a mile is less than 5 per cent above that in 1890, and the average passenger revenue per mile is the lowest in history. The compensation of railroad employees averages nearly four times as much as in 1895, the earliest year for which accurate figures on wages were kept. Railroad taxes per unit of service rendered are nearly two and one-half times as high as they were in 1890.

"Even between 1921 and 1936," he added "there has been so much improvement in railroad plant, as a result of investment, that, if we were to attempt to do today's business with a 1921 plant, shippers would have to pay approximately 29 per cent more in freight rates than they are now paying, or employees would have to get only two-thirds of the pay they are now receiving.

"Such comparisons indicate the economic and social value, not only to railroads, but to those who use railroads, to those who work for railroads, and to the general public, of maintaining the sort of railroad credit which makes it possible to improve plant, increase efficiency, reduce costs, improve service, and raise the standard of well-being for the whole community.

Restored Rail Credit Would Boom Business

"Sound credit of that sort is based on earning ability sufficient to attract new money, not only through the sale of bonds, but through the sale of stock, so that a proper proportion may be maintained between capital raised by low-cost borrowing and capital raised through the sale of shares of ownership in the property. To restore railroad credit so that the carriers could resume the sort of investment which made possible the striking gains in efficiency and improvements of service in recent years, would be, I believe, the greatest single contribution to better business that could be made at this time."

Asks Roads to Forego Some Ex Parte 115 Increases

Mr. Dick was cross-examined briefly by John W. Bonner, attorney for the Public Utilities Commission of Montana, whose motion to have the witness' exhibit stricken from the record was overruled. At this point also John F. Finerty, representing the Glass Container Association of America, the Lime Products Corporation and the National Carbide Sales Corporation, cited what he conceived to be "procedural difficulties" brought about by pending tariffs proposing the Ex Parte 115 increases on commodities not specifically dealt with in that proceeding. These are the cases wherein the outstanding orders were removed to permit the filing of the new tariffs, subject to suspension.

Mr. Finerty was unable to understand how logical procedure could embrace at the same time the Ex Parte 123 hearing and others on Ex Parte 115 suspensions; he did not know how the commission could grant an Ex Parte 123 increase of a suspended Ex Parte 115 rate. Thus he asked "in the interest of expedition and the lessening of opposition" that the carriers consider withdrawing tariffs carrying the Ex Parte 115 increases on the commodities not specifically dealt with in that pro-

ceeding. Much of the present opposition, he added comes from the "pyramiding of increases." Later, after Mr. Finerty had asked the commission to hear shipper arguments on suspension in toto of the tariffs involved, Judge R. V. Fletcher, vice-president and general counsel of the Association of American Railroads, said that the carriers would give the matter of voluntary suspension serious consideration.

Discussing the prospective expenditures of \$900,000,000 in each of the next several years, as mentioned above, Mr. Budd classed present opportunities for effecting economies and improving service through the investment of new money "among the most promising features of the present railroad situation." He added, however, that the first essential of any such investment is net earnings sufficiently large to support railroad credit.

100,000 Cars, 2,000 Locomotives a Year

"The railways," Mr. Budd continued, "might well replace their 2,000,000 cars in the next two decades through the purchase of 100,000 new cars a year, at an annual expenditure of \$300,000,000. They also might advantageously purchase 2,000 new locomotives annually for the next several years, at a yearly cost of another \$300,000,000, while a like sum could be spent to good purpose for other physical improvements to the railway plant. Such a program of capital expenditures, however, calls for the restoration and stabilization of railroad credit, which, in turn, can be brought about only by adequate net earnings." Mr. Budd estimated an annual saving of \$125,000,000 in operating expenses if the present freight equipment were replaced with new light-weight freight cars. "The same kind of alloy metals that make this possible also make possible great improvements in locomotives and in track," he added.

Discussing the situation of the Burlington, which the depression affected "just as it did the average Western road," Mr. Budd said that if business is to continue at the level of 1936 and the average for the year 1937, there should be something like 2,000 cars constructed for the Burlington each year for several years to come. "There should be some new locomotives built every year; there should be some improvements made in our shops in the way of machinery and tools; and, of course, we will have to make rather extensive renewals of rails and ties. In connection with financing these improvements it is highly essential to maintain the broadest possible market for railroad securities, or else the price will be low and the interest yield to maturity will be correspondingly high. The best market generally for securities of the type that we would issue to finance our improvements would be with insurance companies, savings banks and endowed institutions. Those investors are to a large extent limited by law as to the securities they may buy, and if credit is to be maintained, it is necessary to earn the required coverage of interest and also to be able to make the dividend payments."

26 Western Roads in Difficulties

The steady increase in operating efficiency and the improvement in freight and passenger services on Western roads was stressed by Fred W. Sargent, president of the Chicago & North Western. Employing figures on the efficiency and services of his own road, he pointed to the progress made in reducing the unit cost of transportation since 1921, by savings in fuel consumption, reduction in loss and damage payments, and increases in the efficiency of the railroad's plant and equipment.

Despite these efforts, he said, declining revenues and

increased costs of fuel, material and supplies, rising wages and taxes have resulted in trusteeship for 12 Western roads operating 51,610 miles of line and receivership for two roads operating 1,781 miles of line. In addition, 12 Western roads involving 11,566 miles of line are now operating at a deficit. Of the 45 roads in Western territory, 26, operating 48 per cent of the total mileage, are in financial difficulties.

Hale Holden, chairman of the Southern Pacific called the condition of the railroad industry one of the obstacles to greater progress toward national recovery. Recent increases in operating costs and taxes, the witness continued, have made such inroads into railroad earnings that substantial additional revenue must be received to strengthen and maintain railroad credit and purchasing power.

Increased Costs Will Continue

"So far as can be foreseen," Mr. Holden continued, "substantially increased costs of operation will continue, and it is entirely possible that prices of material and supplies necessary for railroad operation, maintenance and capital expenditures may undergo a further increase. Nor has the recent recession in business any bearing upon the amount of the rate increases requested. With a much larger gross revenue than that received by the railroads during the first eight or nine months of 1937, the additional revenue sought would still be necessary to properly maintain the properties and meet fixed charges."

After discussing the situation of the Southern Pacific transportation system as indicative of the problems now confronting the railways, Mr. Holden asked: "What alternative is there but an increase in freight and passenger rates to avoid trouble? The only alternative is to reduce expenses, which means lessened employment, and shrinkage in the operations of the railroad transportation machine. So far as the Southern Pacific Transportation System is concerned, there are few of these economies remaining which could be of substance, because most of them have already been accomplished. This nation, as a whole, cannot prosper with one of its greatest industries distressed in the present fashion. Indeed, to my mind, one of the obstacles toward a greater progress on the path to recovery has been the condition of the railroad industry, and one of the most helpful influences toward a resumption of a return to prosperity would be an increase in the railroad income, similar to that which all other forms of industry have already accomplished, by the increase in rates which is now being asked for."

Future of Industry Being Shaped

The future of the railroad industry is being shaped here and now, H. A. Scandrett, trustee of the Chicago, Milwaukee, St. Paul & Pacific, told the commission. "In the equity and bankruptcy courts," he said, "are 71,386 miles of railroad, and struggling on the brink of failure are many thousand more miles of railroad. All are now headed in the same direction. The procession *should* be headed in the other direction. It *can* be done. If all parties give to this case broad-minded, clear-visioned and impartial consideration, a way for the continued operation of the railroad industry under private ownership and operation will be found. I have faith to believe this will be done.

Outlining the Milwaukee's plight, Mr. Scandrett said that its difficulty "is, in somewhat aggravated form, the difficulty of every railroad—the narrowing spread be-

tween revenues and expenses, the inability to store up fat on which it could exist during lean years, and then the cataclysm of our greatest depression."

"The steps a railroad must take to curtail expenditures in times like this, by pruning its payroll and limiting its purchases to absolute and immediate essentials," he concluded, "have broad repercussions throughout the country. The advantages of improved earnings have similarly broad effects. The payroll dollar of the railroad goes to every community, large or small, on the railroad, and directly increases its business activity. As to the beneficial effect of railroad purchases, it need only be said that railroads purchase some 70,000 different articles, produced throughout the country, and in good years these purchases aggregate over a billion dollars. I know of no one thing which would be of such favorable import to the public welfare as to place the railroads in a position which would enable them to restore men to their payrolls and re-enter the markets as purchasers of equipment and supplies."

Quality Service Costs Money

The increased costs incurred in providing the high quality of present-day rail service were emphasized by Wilson McCarthy, a trustee of the Denver & Rio Grande Western. These higher costs, the witness said, coupled with the steady decline which has occurred in average revenue have so narrowed the margin between revenues and expenses that the D. & R. G. W. has been forced into the hands of the courts.

Charles Donnelly, president of the Northern Pacific, directed his testimony almost entirely to the situation in which that road finds itself. Its plight, he explained, is substantially the same as that of the railroads as a whole. This was illustrated, he continued, in Mr. Dick's exhibit which showed that during the depression of the 1890's when the N. P. was in receivership its prior lien bonds sold above par; now they are selling around 92 per cent of par. Northern Pacific executives, Mr. Donnelly revealed, prepared a tentative 1938 budget of \$11,000,000, divided about equally between proposed roadway and equipment expenditures. Recent adverse developments forced a paring of the roadway allotment to \$2,600,000 and the equipment allotment to \$250,000. His road, the witness continued, is efficiently operated; but, like other roads, it has now tapped practically all sources of economy.

Stockholders Are "Forgotten Men and Women"

Classifying railroad stockholders as "the forgotten men and women of the country," S. T. Bledsoe, president of the Atchison, Topeka & Santa Fe, emphasized the widespread distribution of railway ownership among individuals, fiduciaries, savings banks, life insurance companies, religious, hospital and charitable organizations, and educational and scientific institutions.

"Producers and shippers of commodities used by the railroads have generally passed on to the consumers, including the railroads, the increased cost of labor and materials incurred in manufacture or production," he concluded. Why should privileges that are now exercised by manufacturers and producers generally, and presumably necessarily so exercised, not be granted to the railroads on whom they depend for the indispensable service of transporting their commodities from the place of manufacture or production to the place of consumption? The present application for an increase in rates and fares is based upon the needs of the carriers to meet in part their increased costs, and will not, even if fully

realized, put them on a parity with manufacturers and producers generally."

Adequate Earnings Open Purchasing Agents' Doors

The doors of railroad purchasing agents' offices, now closed except for the buying of current necessities, will be thrown open and employment in all branches of railroad service will doubtless increase if the railroads are permitted to earn adequate revenues, said F. E. Williamson, president of the New York Central. Mr. Williamson declared that the present "unsatisfactory situation" of railroad costs and revenues results in serious reduction in the direct and indirect purchasing power of the rail carriers. Continuing, he pointed out that the railroads are today providing more service to the public per dollar of operating revenue than ever before and doing it more efficiently, but warned that any further worth while reductions in costs of operation must come out of the service. The railroads, he added, could save money by giving less satisfactory service, such as slower switching and less convenient freight service; but changes of this kind would prove detrimental to shippers.

Mr. Williamson conceded that there has been an increase in the volume of passenger travel on the railroads over the corresponding months of last year, and that, generally speaking, passenger revenues have been somewhat in excess of those revenues of the corresponding months of last year. "In all fairness, however, we should not overlook other contributing causes," he added. "In recent years, the railroads have spent much and done much to make passenger travel on the rails more comfortable and more attractive. Train schedules have been speeded up; newer types of equipment have been put into operation, and air conditioning has been provided, not only in large numbers of Pullman cars, but also in coaches of many of the through trains. These improvements, although retarded in recent years by economic conditions, represent millions of dollars in the way of capital expenditures."

Low-Fare Passenger Volume Less Profitable

Mr. Williamson contended that, on the whole, "passenger business is not as remunerative today as it was prior to the reduction in fares. The additional revenues are more than offset by increased expenses," he pointed out. "We have had to operate a great many additional train miles and many additional car miles, particularly club cars, dining cars and the like."

In closing, Mr. Williamson reminded the commission that "rail transportation is still essential to the economic welfare of the country and indispensable to the national defense," and that "in order to maintain such an adequate system of transportation, the country must be willing to pay a reasonable price for it. The railroads need a prosperous country, but also, perhaps more so, a prosperous country needs the railroads," he concluded.

Situation as Serious as in Post-War Years

When Daniel Willard, president of the Baltimore & Ohio, said that he preferred to stand while reading his statement, Commissioner Aitchison remarked that if all witnesses stood it "might shorten the testimony." Mr. Willard, who has been president of the B. & O. for the past 28 years, stated it to be his opinion that the financial situation of the American railroads is just as serious now as it was at the end of the World War period, if not more so. "In 1920," he pointed out, "the Interstate Commerce Commission, after a relatively brief hearing,

granted permission to the railroads to increase their freight rates in the eastern region 40 per cent, and large increases were authorized in all parts of the United States. It was said by many at the time that, if such an increase in freight charges should be made, notwithstanding the fact that there had been almost an unprecedented advance in prices of all other things during the war, the result would be to destroy or at least check business to such an extent that the railroads, instead of benefiting by the increase, would actually be injured. Such forecasts happily proved to be unfounded.

"During the ten years following this 40 per cent rate case," he continued, "we had in this country the most active and prosperous condition generally, including the railroads. There is ample evidence in the picture of that period to show that nothing contributed more towards the recovery of business and industrial activity after the depression immediately following the war than the rate increase granted to the railroads. I have not overlooked the fact that, following subsequent reductions in wages and the prices of materials, the railroads themselves reduced certain rates and the commission reduced others."

Legislation such as the retirement act, the signal inspection act and state full crew acts will have the effect of increasing substantially the Baltimore & Ohio's expenses, President Willard reminded the commission, adding that "there is no influence or tendency in sight today that may be expected to reduce these costs."

Mr. Willard lamented the fact that a large number of railroad men are now out of service because of existing conditions. The same influence is felt by many industries engaged largely, if not wholly, in manufacturing railway supplies and equipment, he said. "Should the increase now requested be granted," Mr. Willard concluded, "I believe it will do more than any other single thing to promote recovery and reduce unemployment."

Would Create Business Confidence

M. W. Clement, president of the Pennsylvania, listed the following results which may be expected from the increase in revenues which the railroads are asking: "It would place behind us the situation as to further railroad failures, create confidence on the part of business, create an immediate uplift in employment, within and without the railroad industry which in itself would be a great momentum to business."

"With that problem behind us, it would create a spirit of confidence that would get everybody moving forward," he added.

Answering the question as to what is the matter with the railroads, Mr. Clement said that "It isn't their service. They are giving the people the best and cheapest passenger service that they have ever given in their whole history. The freight performance has been outstanding all through the depression. The history of most depressions is one of retrogression in service. This depression, particularly in the last four years, has seen an improvement in all the services."

"It isn't their labor relations. Both labor and the managements of the railroads have cooperated throughout the last four years in every way to meet the problems of labor and the government.

"The answer to their problem is obvious, but is always met by the devious. Plain and outstanding is the fact that they need additional revenue—an increase in rates for the service they perform. Probably an increase even greater than that asked for by the railroads themselves is necessary."

After reviewing conditions on the Pennsylvania, Mr.

Clement asked the commission not to overlook "one of the big things, as far as the cost of transportation goes—that there has been no time, in boom times or in depression," since post-war improvements in service, that "every commodity has not had available a proper car supply."

The emergency confronting the Boston & Maine was pointed out in testimony by its president—Edward S. French—who said that while that road has covered its fixed charges in recent years except in 1936 when the expenses were abnormal on account of the floods, the discontinuance of the emergency charge on freight rates, the increases in wages, prices of materials, pensions and social security taxes, present a serious problem. Thus the B. & M., in line with railroads generally, "is facing an emergency which requires an immediate remedy. The severity of the emergency is constantly increasing and prompt relief is imperative."

"Phenomenally Low" Average Rates Not Appreciated

Industries that press for lower and lower rates "frequently lose sight of the outstanding freight service performed by railroads at the phenomenally low average cost of one cent or less per ton mile," said J. B. Hill, president of the Louisville & Nashville. "Surely," he added, "this is a low price to pay for dependable and efficient service performed even at the peak of traffic and under all the varying conditions demanded by normal operations of industry and also under difficult seasonal and climatic conditions."

After stating that he assumed "the commission will desire to prescribe just and reasonable rates and such as will enable good and efficient service to be economically performed," Mr. Hill asked: "If railroads are economically, efficiently and honestly operated; if they of necessity must be continued, and if other means that give promise of producing a sufficient net revenue have been reasonably exhausted, then does it not hold that whatever rates are required to produce the desired results are reasonable and just?"

"While the beneficial results to industry and labor in a period of prosperity as contrasted with a period of depression have been pointed out, still that does not present the picture now confronting the railroads," Mr. Hill explained. "Without increased revenues, it simply means an effort on the part of railroad management to curtail in every possible way, to a degree even more drastic than has prevailed during any period of the depression, expenditures for improvements and maintenance. This, in turn, means less purchases, fewer people employed and ultimately a deterioration of railroad property and service. On lines whose present or prospective revenues do not now meet expenses, the curtailment has already begun."

New Money Must Be Forthcoming

In order to operate efficiently, economically and safely, the railroads of the country must constantly expend large sums of money for maintenance of and additions and betterments to their plants, L. R. Powell, Jr., receiver of the Seaboard Air Line said, adding that "it is, therefore, imperative that the rail carriers earn adequate revenues to meet these needs, and, if they are to be permitted to do this, their application for an increase in rates must be granted."

Pointing to his company as an example, Mr. Powell informed the commission that, during the approximately six-year period of receivership, ending December 31,

1936, the Seaboard Air Line Railway alone expended about \$14,952,000 for improvements. These additions and betterments, he stated, were made in the interest of operating economies and increased efficiency and to attract or retain traffic.

"If substantial additional revenues are not obtained, it will be necessary for the company to reduce drastically its operating and capital expenditures," Mr. Powell said. "All of this, together with similar contractions on the part of other railroads in our region, will necessarily contribute to the general slowing down of industrial activity with consequent injury to general business conditions throughout Seaboard territory," he added.

Problem Is to Meet Bare Necessities

The present problem of the railways is not to attain prosperity, but rather to meet the bare necessities of existence, H. D. Pollard, receiver of the Central of Georgia, declared. "Our problem," he added, "is not one of earning dividends to which investors may be entitled, or even of earning interest on securities in default. It is the problem of earning operating expenses, taxes and interest on Receivers' obligations. It is obvious that an increase in revenue is the only salvation for the Central of Georgia."

"I think the experience of the Central of Georgia since its receivership," continued Mr. Pollard, "makes it an economic guinea pig. Here is one of the oldest railroads in the country, in operation for more than a century and at one time the longest railroad in the world. Here is a railway of nearly 2,000 miles, that at its peak had 10,500 employees. For years it had been a prosperous property. Its funded debt was never more than \$61,000,000, its stock \$20,000,000. The federal valuation of its properties, brought up to date, is \$112,000,000. Its traffic is diversified. It has a record of efficient management. Yet it is in receivership. No expense control or any measures of economy within the power of management could offset the decline of two-thirds in receipts which the Central of Georgia suffered."

Water Carriers Heard

The commission's "side-show" for water carriers was presided over by Commissioner Caskie and brief testimony was presented by several of the larger interests. Appearing for the Inland Waterways Corporation was L. D. Chaffee, traffic manager, who told the commissioner that they were in need of increased rates and would be willing to go along with the railroads in respect to rail-water rates. Phil G. Safford, assistant to the president of the Mississippi Valley Barge Lines Association, expressed the same opinion which was also acquiesced in by R. Darnelle, secretary of the Canal Carriers Association of New York.

Labor Favors Increase, Says Harrison

A statement in support of the railroad petition was issued on December 2 by George M. Harrison, chairman of the Railway Labor Executives' Association. He stated that, while railway labor had not voted on the proposition, nevertheless the consensus "of the great majority of employees who have expressed themselves seems to indicate that railroad labor unqualifiedly endorses the carrier's petition and believes that the commission is legally and socially obligated to give favorable consideration to the appeal." Mr. Harrison pointed out in the latter connection that section 15a's reference to rates which com-

template the carriers' need for revenue "is not suggestive—it is mandatory." And, he added, "it is of vital consequence to every railroad employee that the industry does prosper."

"During periods of rising prices the railroads must necessarily pay more for materials, equipment and supplies," Mr. Harrison continued. "Whatever may have been the reason—and it is at least interesting to note that the President of the United States is now endeavoring to ascertain the *real* reason—prices of products in the heavy industries, those industries upon whose products the railroads draw most heavily, increased enormously during 1935, 1936 and 1937, at the time when the railroads, because of their deferred maintenance caused by the depression, were forced to buy. Increased prices, however, are only a part of the picture.

Subsidized Carriers Hurt Railroads

"Motor carriers and water carriers, industries heavily subsidized by the federal and state governments, have during the past decade, made deep inroads into railroad traffic, and have forced a general reduction in railroad rates and fares, in many cases to levels which are undoubtedly below 'cost of production.' The responsible element of the motor carrier industry seems to have come to realize at last that the yardstick laid down by the Congress for the determination of railroad rates, applies equally to other forms of transportation.

"Private investors not only expect a reasonable return upon their investments, but it is elementary also that they seek investment channels which are secure. Under a recent executive order of the President, the Reconstruction Finance Corporation, which agency during the past eight years has been making loans to the railroads, will discontinue the making of these loans. The carriers, therefore, will now be dependent entirely upon private capital. In the event this source fails, the alternative is government financing of some kind or government ownership. The increases sought by the railroads, if granted, would greatly improve the credit position of the carriers, assuming of course that those increases would be productive of the revenues estimated.

"It has been emphasized in some quarters that the wage increases granted railroad employees during the past year have constituted the chief cause contributing to the carriers need for additional revenues. More enlightened railroad managements, however, are apt to be commended for their refusal to resort to the misrepresentation of facts in the effort to secure much needed revenues. It has been estimated by railroad management that higher prices of materials and supplies and increased taxes, by far the greater proportion of which are state levies on property, have raised railroad operating costs \$663,000,000 during the past several years. The wage increases granted railroad employees amounted to approximately \$130,000,000. Pension and unemployment insurance taxes amount to \$105,000,000. This figure was the estimated cost based on the number of employees on the payrolls at the time the increases were granted. Since that time, however, there have been wholesale reductions in forces on many properties.

Others Raise Prices—Why Not Railroads?

"When costs of production increase in private industry these costs must necessarily be reflected in the increased price of the product or they are offset by introducing economies in methods of production or standard of product. Why should the railroad industry, therefore, be affected as it is with the greatest of public interest, be

castigated for seeking a reasonable increase in the price of its only product—railroad transportation—when the prices of 'materials and supplies' necessary to the creation of that product, have materially increased.

"The railroads not only have the wholehearted support of their employees in this matter, but we believe they also have the support of enlightened shippers who realize that our transportation system, if it is to continue to render adequate and efficient service, must be based upon rates which cover legitimate cost of production, including fair wages and reasonable working conditions for employees, and a fair return to the owners. Shippers also know that the increase in the price of what they sell the railroads has made them responsible to a great extent for the need for this added revenue.

"Railroad labor has for many years vigorously insisted that the railroad financial structure should be placed upon a sounder basis. Were this effected, the industry would be in a much better position at all times to meet its obligations. Nevertheless the rationalization of the financial structure and the rate structure itself, which is greatly needed, would not contemplate static rate levels."

New Books...

Smoke and Boiler Ordinances. Compiled and published for the Smoke Prevention Association, Secretary Frank A. Chambers, Room 1401, City Hall, Chicago. 152 pages, 6 in. by 9 in. Price: Paper-bound, 50 cents.

This manual of smoke and boiler ordinances and requirements is published in the interest of smoke and air pollution regulation and increased efficiency in fuel combustion. It is the official publication of the Smoke Prevention Association and includes, in addition to recommended methods for measuring air pollution, a synopsis of papers read before the thirty-first annual convention held at New York, June 1 to 4, 1937. Of particular interest to railroad men are the papers on "Locomotive Smoke Abatement," by E. E. Ramey, fuel supervisor, Baltimore & Ohio, and "What the Railroads Have Done to Abate Smoke in Hudson County, N. J.," by George H. Massey, Hudson County, N. J.

The Story of Tunnels, by Archibald Black, 240 pages, 6 in. by 9 in. Bound in cloth. Published by Whittlesey House, McGraw Hill Book Company, 330 West 42nd street, New York. Price \$2.75.

In brief, this book is a history of tunnels rather than of tunneling methods. While written for the non-technical reader, the text discloses evidence of painstaking work on the part of the author and careful checking by qualified engineers to whom credit is given in the preface. It contains little of technical value to any one who has a working knowledge of tunneling, but presents a fund of information concerning the essential physical facts, the promotional circumstances, the construction progress and the difficulties that attended the building of the more important tunnels the world over since the dawn of history.

On the whole, the subject matter is well balanced; a few episodes have been introduced because of their human interest value rather than because they had any significance in advancing the art. Urban subway construction has been accorded more space than seems warranted from the standpoint of the ratio of the mileage of subways to the total tunnel mileage. The author has devoted considerable space to the use of the shield in subaqueous work, but has given little attention to other details of construction, such as the various systems of excavating and timbering in soft ground. The introduction of power drills and explosives is dismissed with a minimum of exposition, and mucking by machinery is ignored. No mention is made of the Canadian Pacific's Connaught tunnel, although it ranks third in length among the great railway tunnels on the American continent.

NEWS

Annual Report of Alaska Railroad

Gross operating revenues of carrier are up 4.65 per cent over 1936

The gross operating revenues of the Alaska Railroad for 1937 were \$1,955,502, an increase of \$86,976, or 4.65 per cent over the comparable figure for 1936, according to a statement by O. F. Ohlson, general manager, which forms a part of the annual report of the Secretary of the Interior. The road's operating expenses amounted to \$1,966,174, which was an increase of \$77,240, or 4.08 per cent over the same period last year. The increase, says the report, is due to an advance in the cost of material, supplies, and equipment.

In sharp contrast to a deficit of last year, the road showed an operating profit this year of \$2,522, an increase of \$19,965, or 114.45 per cent over last year. The operating profit included an expenditure of \$7,448 made during 1937 for investigation of mineral and other resources, which amount, if deducted, would produce an actual operating profit of \$9,971.

The passenger earnings in 1937 decreased \$34,702, or 15.01 per cent; while freight earnings for the same period increased \$110,689, or 8.27 per cent.

The rail-line revenue passengers in 1937 decreased 15,406 as compared with last year, which was in part due to the cessation of boat service to Alaska during the period of the maritime strike, and in part to the reduction in short-haul passengers. Rail-line freight tonnage handled increased 6,707 tons, and is attributable, says the report, to the continued improvement of business conditions in Alaska.

The pay roll for 1937 amounted to \$1,632,503, an increase of \$60,049 over the previous year. The report states that this increase is largely due to the application of the leave act, which was extended to practically all employees of the railroad.

Would Investigate Coal Commission

Resolutions calling for the investigation of the National Bituminous Coal Commission have been introduced in both the House and Senate during the past week. On the House side, Representative Ellenbogen of Pennsylvania submitted a resolution "to direct the Federal Trade Commission to investigate the effect of increase in freight rates on bituminous coal and coke on the consumption and production of coal and coke, on the use of substitute fuels, on the

use of substitute methods of transportation, and on employment and unemployment in the coal industry and in related industries." The Federal Trade Commission is directed to report the result of its investigation not later than January 3, 1939. Mr. Ellenbogen charges that the increased rates on coal and coke under Ex Parte 115 will result in higher coal prices which will encourage the use of substitute fuels with the possible result that the railroads may earn less under the new rates than before.

Senator King of Utah, in his resolution, has alleged that the commission has failed

October's N.O.I. 32% Under '36

Higher operating costs and lower gross combine to produce decline

"Because of higher operating costs and lower revenues, the net railway operating income of the Class I railroads in October was 32.4 per cent below that for the

CLASS I RAILROADS—UNITED STATES

	Month of October		
	1937	1936	1930
Total operating revenues	\$372,925,813	\$391,301,303	\$477,966,434
Total operating expenses	270,357,355	261,034,652	322,443,081
Taxes	29,467,694	28,545,023	31,791,258
Net railway operating income	60,747,445	89,809,372	110,923,349
Operating ratio—per cent	72.50	66.71	67.46
Rate of return on property investment—per cent	1.84	2.73	3.35
	Ten Months Ended October 31		
	1937	1936	1930
Total operating revenues	\$3,547,567,402	\$3,320,656,488	\$4,512,318,485
Total operating expenses	2,626,414,886	2,424,716,641	3,340,656,001
Taxes	279,498,971	260,252,609	303,226,866
Net railway operating income	530,770,017	524,292,106	759,038,636
Operating ratio—per cent	74.03	73.02	74.03
Rate of return on property investment—per cent	2.38	2.36	3.43

to follow the civil service law in making appointments. He also accuses the commission of excessive administration expense and several other charges. Senator King's resolution would have a special committee of three senators conduct an investigation of the commission. Both resolutions have been referred to the appropriate committees, but no action has been taken on them.

Increased Rates on Railway Materials in Southwest

Upon further hearing the Interstate Commerce Commission, Division 4, has found justified proposed increases in carload rates on iron and steel railway materials to, from and between points in the Southwest. This finding, to which Commissioner Porter dissented, reverses the previous decision in the case—I. & S. Docket No. 4241.

Pittsburgh Railway Club

W. H. Mussey, engineer of research, Pullman-Standard Car Manufacturing Company, will address the Railway Club of Pittsburgh at the Ft. Pitt Hotel, Pittsburgh, Pa., on Thursday evening, December 16, on Freight Car Construction of the New Welded Light Weight Type. Mr. Mussey's address will be illustrated by a moving picture sound film, illustrating the construction of modern cars.

same month last year," says the monthly report from the Bureau of Railway Economics of the Association of American Railroads. Operating costs were 3.6 per cent greater in October than in the same month last year and gross revenues were down 4.7 per cent. The October net railway operating income of \$60,747,445, was at the annual rate of return of 1.84 per cent; in October, 1936, it was \$89,809,372, or 2.73 per cent, and in October, 1930, \$110,923,349, or 3.35 per cent.

Gross operating revenues for October amounted to \$372,925,813 compared with \$391,301,303 in October, 1936, and \$477,966,434 in October, 1930; operating expenses totaled \$270,357,355 compared with \$261,034,652 in the same month in 1936 and \$322,443,081 in 1930.

In the first 10 months of 1937 the net railway operating income of the Class I roads totaled \$530,770,017, which was at the rate of 2.38 per cent. In the same period last year it was \$524,292,106 or 2.36 per cent, and in the first 10 months of 1930 it was \$759,038,636, or 3.43 per cent.

Gross for the 10 months of 1937 totaled \$3,547,567,402 compared with \$3,320,656,488 for the same period in 1936, and \$4,512,318,485 in 1930, an increase of 6.8 per cent in 1937 above 1936, but 21.4 per cent below 1930. Operating expenses for the first 10 months amounted to \$2,626,414,886 compared with \$2,424,716,641 in 1936, and

(Continued on page 813)

Shipping Aided By Government

Annual report shows "progress" was made in rivers and harbors work

The United States War Department's rivers and harbors work during the year ended June 30, 1937, proceeded in some instances with "notable progress," in others with "material progress" and in still others with "substantial progress" while at the same time the federal government's Inland Waterways Corporation attained "satisfactory results," according to the annual report of Secretary of War Harry H. Woodring. Also, the Panama Railroad Company reported for the fiscal year under review a net revenue of \$1,519,629 from which dividends in the amount of \$700,000 were declared and credited to the federal government.

Allotments totaling \$192,989,120 for both rivers and harbors and flood control work were received during the year; total expenditures on both from these allotments and funds previously allotted amounted to \$233,976,284. The rivers and harbors work "has been actively prosecuted on 342 separate projects, the available funds having been applied to the works most necessary for navigation."

The "notable progress" was made in the canalization of the upper Mississippi river to provide "a dependable nine-foot channel to Minneapolis"; and in the improvement of facilities at ocean ports and in harbors and connecting channels of the Great Lakes. The upper Mississippi's nine-foot channel is expected to be completed in 1939—already 24 locks and 15 dams are finished out of the project's total of 26 locks and dams. The "material progress" was made on the Missouri river "in extending stabilization of the six-foot channel to Sioux City"; while "substantial progress" has attended the work of enlarging the New York State Barge Canal "to a secure depth of 14 ft. from the Hudson river, 187 miles to Oswego on Lake Ontario"—a project which is 22 per cent completed.

Other projects mentioned include the construction of new locks and dams at La Grange, Ill., and Peoria on the Illinois Waterway to provide a nine-foot channel connecting the Mississippi system with Lake Michigan; the Fort Peck and Bonneville dams; new locks on the Kanawha river at Winfield, W. Va., on the Ohio river at Gallipolis, Ohio, and Montgomery Island, Pa., and on the Savannah river at New Savannah Bluff, Ga.; the Apalachicola-St. Andrews Bay section of the protected intercoastal waterways which was completed during the year; the enlargement of the channel of the Cape Cod Canal which was 54 per cent completed on June 30; and the widening and deepening of the Chesapeake & Delaware Canal which is scheduled for completion in the fiscal year 1939.

The Inland Waterways Corporation, the report explains, "operates the Federal Barge Line on the Mississippi, Missouri, Illinois and Warrior Rivers in accordance

with congressional authority"; and it adds the reassurance that "the purpose of Congress in establishing this agency to encourage the development of barge transportation on our inland waterways is being achieved." The "satisfactory results" attained by this enterprise came despite a sharp decline in net revenue, "because of the elimination of an existing surcharge." However, earnings are expected to increase as a result of rate increases "recently granted by the Interstate Commerce Commission."

During the year ended June 30, Inland
(Continued on page 813)

\$78,722,484 Net for Nine Months

September down to \$16,209,508 from its 1936 figure of \$26,481,594

Class I railroads for the first nine months of this year reported a net income, after fixed charges and other deductions, of \$78,722,484 as compared with a net of \$43,713,013 for the first nine

SELECTED INCOME AND BALANCE-SHEET ITEMS OF CLASS I STEAM RAILWAYS

Compiled from 135 Reports (Form IBS) Representing 141 Steam Railways

TOTALS FOR THE UNITED STATES (ALL REGIONS)

For the month of Sept. 1937	For the month of Sept. 1936	Income Items	For the nine months of 1937	For the nine months of 1936
\$59,304,954	\$70,096,165	1. Net railway operating income.....	\$468,449,037	\$434,482,732
11,058,436	11,981,493	2. Other income.....	102,014,402	108,124,046
70,363,390	82,077,658	3. Total income.....	570,463,439	542,606,778
1,504,140	2,354,580	4. Miscellaneous deductions from income	15,218,693	15,137,311
68,859,250	79,723,078	5. Income available for fixed charges	555,244,746	527,469,467
11,079,387	10,958,844	6. Fixed charges:		
40,327,080	41,030,253	6-01. Rent for leased roads.....	99,690,873	99,666,899
225,803	234,915	6-02. Interest deductions.....	365,502,567	372,909,108
51,632,270	52,224,012	6-03. Other deductions.....	2,083,862	2,045,487
17,226,980	27,499,066	6-04. Total fixed charges.....	467,277,302	474,621,494
1,017,472	1,017,472	7. Income after fixed charges.....	87,967,444	52,847,973
16,209,508	26,481,594	8. Contingent charges.....	9,244,960	9,134,960
16,566,876	16,116,349	9. Net income.....	78,722,484	43,713,013
3,404,205	2,270,115	10. Depreciation (Way and structures, and Equipment).....	146,884,341	145,157,864
5,051,641	2,116,636	11. Federal income taxes.....	29,352,776	20,068,889
1,305,000	\$ 637	12. Dividend appropriations:		
		12-01. On common stock.....	72,584,273	63,802,944
		12-02. On preferred stock.....	14,402,099	17,228,275
		Selected Asset Items	Balance at end of September 1937	Balance at end of September 1936
		13. Investments in stocks, bonds, etc., other than those of affiliated companies (Total, Account 707).....	\$697,348,188	\$688,528,312
		14. Cash.....	\$448,487,803	\$505,909,839
		15. Demand loans and deposits.....	16,975,622	14,447,651
		16. Time drafts and deposits.....	40,782,230	40,668,235
		17. Special deposits.....	142,180,679	147,204,421
		18. Loans and bills receivable.....	10,653,709	2,349,257
		19. Traffic and car-service balances receivable.....	60,064,079	61,399,538
		20. Net balance receivable from agents and conductors.....	54,891,319	54,099,915
		21. Miscellaneous accounts receivable.....	142,320,888	144,093,506
		22. Materials and supplies.....	383,794,201	295,676,806
		23. Interest and dividends receivable.....	23,009,518	27,803,975
		24. Rents receivable.....	2,193,446	2,560,850
		25. Other current assets.....	8,762,855	6,538,001
		26. Total current assets (items 14 to 25).....	\$1,334,116,449	\$1,303,651,994
		Selected Liability Items		
		27. Funded debt maturing within 6 months†.....	\$74,734,216	\$158,852,956
		28. Loans and bills payable‡.....	\$210,501,064	\$219,111,734
		29. Traffic and car-service balances payable.....	81,151,380	80,805,625
		30. Audited accounts and wages payable.....	259,060,579	231,150,686
		31. Miscellaneous accounts payable.....	102,556,267	106,202,341
		32. Interest matured unpaid.....	634,072,567	520,496,575
		33. Dividends matured unpaid.....	12,988,519	13,015,809
		34. Funded debt matured unpaid.....	476,907,390	474,318,202
		35. Unmatured dividends declared.....	2,379,597	1,141,223
		36. Unmatured interest accrued.....	102,917,870	103,276,261
		37. Unmatured rents accrued.....	32,359,645	31,768,727
		38. Other current liabilities.....	26,082,058	25,836,309
		39. Total current liabilities (items 28 to 38).....	\$1,940,976,875	\$1,807,123,492
		40. Tax liability (Account 771):		
		40-01. U. S. Government taxes.....	\$113,974,895	\$77,033,982
		40-02. Other than U. S. Government taxes.....	158,404,455	160,538,854

* The net income as reported includes charges of \$3,432,988 for September, 1937, and \$29,645,708 for the nine months of 1937, \$1,449,185 for September, 1936, and \$13,113,727 for the nine months of 1936 on account of accruals for excise taxes levied under the Social Security Act of 1935; also includes charges and credits resulting in a net charge of \$3,332,544 for September, 1937, and \$16,227,965 for the nine months of 1937 because of provisions of the "Carriers Taxing Act of 1937," approved June 29, 1937, and repeal of the Act of August 29, 1935, levying an excise tax upon carriers and an income tax upon their employees, and for other purposes (Public No. 400, 74th Congress). The charges and credits were not handled in a uniform manner by all the carriers, and separate totals are not available. The net income for September, 1936, includes charges of \$3,880,889 and for the nine months of 1936 of \$27,275,110 under the requirements of an Act approved August 29, 1935, levying an excise tax upon carriers and an income tax upon their employees, and for other purposes (Public No. 400, 74th Congress).

† Includes payments which will become due on account of principal of long-term debt (other than that in Account 764, Funded debt matured unpaid) within six months after close of month of report.

‡ Includes obligations which mature not more than 2 years after date of issue.

§ Deficit or other reverse items.

NET INCOME OF LARGE STEAM RAILWAYS WITH ANNUAL OPERATING REVENUES

ABOVE \$25,000,000

Name of railway	Net income after deprec.		Net income before deprec.	
	For the nine months of 1937	For the nine months of 1936	For the nine months of 1937	For the nine months of 1936
Alton R. R.	\$711,430	\$1,174,689	\$444,696	\$916,016
Atchison, Topeka & Santa Fe Ry. System	6,040,192	3,728,924	14,594,321	12,238,782
Baltimore & Ohio R. R.	2,403,067	1,062,262	3,921,577	2,653,260
Boston & Maine R. R.	483,135	250,077	5,902,577	5,789,974
Central of Georgia Ry.	355,461	2,473,858	1,563,505	1,244,839
Central R. R. of New Jersey	1,495,738	1,789,210	901,808	1,211,905
Chesapeake & Ohio Ry.	1,186,246	2,471,992	111,542	1,327,348
Chicago & Eastern Illinois Ry.	25,220,947	28,836,672	31,411,966	35,154,186
Chicago & North Western Ry.	641,764	791,857	182,260	349,286
Chicago, Burlington & Quincy R. R.	12,352,070	10,001,538	8,609,331	6,297,944
Chicago Great Western R. R.	2,310,049	1,768,528	5,934,166	5,207,107
Chicago, Milwaukee, St. Paul & Pacific R. R.	887,345	144,988	488,247	231,747
Chicago, Rock Island & Pacific Ry.	10,277,383	12,156,189	6,188,175	8,131,757
Chicago, St. Paul, Minneapolis & Omaha Ry.	7,612,965	11,573,007	4,560,239	8,359,688
Delaware & Hudson R. R.	2,199,049	1,504,602	1,754,033	1,057,660
Delaware, Lackawanna & Western R. R.	560,388	1,237,417	233,281	412,769
Denver & Rio Grande Western R. R.	367,048	931,157	1,518,453	1,070,351
Elgin, Joliet & Eastern Ry.	4,998,116	3,929,041	4,133,948	3,063,811
Erie R. R. (including Chicago & Erie R. R.)	1,608,022	1,053,227	2,283,390	1,726,791
Grand Trunk Western R. R.	1,121,253	896,965	3,979,072	3,811,314
Great Northern Ry.	525,439	116,232	255,861	725,995
Illinois Central R. R.	6,955,666	3,209,176	9,682,471	5,960,980
Lehigh Valley R. R.	1,350,398	2,498,055	3,321,519	2,409,574
Long Island R. R.	997,715	691,263	690,854	2,412,265
Louisville & Nashville R. R.	1,564,524	452,651	687,766	421,734
Minneapolis, St. Paul & Sault Ste. Marie Ry.	5,717,803	6,047,696	8,843,829	9,182,912
Missouri-Kansas-Texas Lines	3,992,632	4,357,168	3,108,427	3,440,612
Missouri Pacific R. R.	770,282	1,197,234	119,911	233,559
New York Central R. R.	5,657,880	7,517,692	2,514,220	4,365,972
New York, Chicago & St. Louis R. R.	7,235,793	3,501,306	19,274,242	15,648,434
New York, New Haven & Hartford R. R.	2,009,029	1,982,889	3,237,545	3,140,893
Norfolk & Western Ry.	4,635,141	4,814,937	2,097,526	2,235,000
Northern Pacific Ry.	23,850,353	22,529,713	27,446,529	25,911,886
Pennsylvania R. R.	2,081,660	4,100,471	343,829	1,738,519
Pere Marquette Ry.	21,905,151	24,717,827	40,600,673	41,179,477
Pittsburgh & Lake Erie R. R.	1,372,572	1,298,374	3,288,608	3,197,959
Reading Co.	3,706,205	3,367,553	5,098,086	4,720,778
St. Louis-San Francisco Ry.	5,427,724	4,482,915	7,751,110	6,866,279
St. Louis Southwestern Lines	4,854,474	5,770,601	2,492,650	3,356,876
Seaboard Air Line Ry.	745,454	254,952	295,629	199,144
Southern Ry.	3,574,473	5,115,780	2,112,071	3,704,830
Southern Pacific Transportation System	1,196,547	1,640,832	3,541,228	4,076,679
Texas & Pacific Ry.	1,524,380	5,040,589	7,566,198	10,910,982
Union Pacific R. R.	1,709,280	1,044,191	2,578,156	1,919,549
Wabash Ry.	8,982,521	9,684,538	14,057,793	14,530,858
Yazoo & Mississippi Valley R. R.	2,158,865	1,946,295	551,516	347,725
	618,392	30,496	988,156	362,016

† Report of receiver or receivers.

‡ Report of trustee or trustees.

§ Includes Atchison, Topeka & Santa Fe Ry., Gulf, Colorado & Santa Fe Ry. and Panhandle & Santa Fe Ry.

¶ Includes Boston & Albany, lessor to New York Central R. R.

* Includes Southern Pacific Company and Texas & New Orleans R. R. The operation of all separately operated, solely controlled affiliated companies resulted in a net deficit of \$2,579,473 for nine months of 1937 and \$2,585,270 for nine months of 1936. These figures are not reflected in this statement.

• Deficit.

months of 1936, according to the Interstate Commerce Commission's monthly compilation of selected income and balance sheet items. The September net income was \$16,209,508 as compared with \$26,481,594 for September, 1936.

Seventy roads reported a net income for the nine months, while 62 reported deficits; in September 67 reported a net income and 65 reported deficits. Last year only 60 roads had a September deficit. The consolidated statement and a statement of the net of roads having annual operating revenues above \$25,000,000 are given in the accompanying tables.

Reports of Class III Roads

The Interstate Commerce Commission Division 4 has approved a new Form C to be used for the filing of annual reports by all Class III steam railways subject to the Interstate Commerce Act. The new order supersedes a previous one dated November 10, 1936.

Meeting of Washington Railway Enthusiasts

The Washington Division of the Railroad Enthusiasts will hold their next regular meeting on December 11, in Room 1030

of the Transportation Building. The program of the evening will consist of an illustrated lecture by Paul T. Warner of the Baldwin Locomotive Works on the subject of "Development of Various Locomotive Types."

Trainman Killed in Attempted Train Robbery

A trainman was killed when two men, dressed in cowboy attire, attempted to rob passengers on the Apache of the Chicago, Rock Island & Pacific and the Southern Pacific at Mount Riley, N. M., on November 25. The two men boarded the train at El Paso, Tex., at midnight. A mile east of Mount Riley, one of the gunmen went to the first chair car, drew a revolver and ordered the conductor to go to the end of the car, where the second robber had covered the passengers with a pistol. When the brakeman entered he was forced to join the conductor. While one of the robbers covered the trainmen and passengers, his companion started back through the train and began taking money and valuables from the passengers. To give emphasis to his commands, he fired his pistol several times. When the robbers attempted to leave the front coach a train-

man grappled with one and as the other rushed to his aid he was tripped by another employee. In the scuffle with the train crew the gun of one of the robbers went off, killing the trainman.

Locomotive Types Described in Industrial Publication

A short commentary on the development and application of steam locomotive types, supplemented by photographs illustrating each type, appears in the current issue of "The Power Specialist", a publication of the Johns-Manville Corporation, New York. Entitled "The Old Iron Horse, She Ain't What She Used to Be. . .", the article traces back the various mechanical features of modern motive power to their origin in the locomotive types. A table listing the types by wheel arrangement summarizes the material presented for each.

Central Western Board Meeting

The thirty-seventh regular meeting of the Central Western Shippers Advisory Board will be held at Cheyenne, Wyo., on December 8. At a luncheon on the same day William M. Jeffers, president of the Union Pacific, and Fred E. Warren, chairman of the executive committee of the Wyoming Stock Growers Association, will discuss the present railroad situation and the interest of shippers in efficient and economical transportation.

New Head for I.C.C. Bureau of Accounts

The Interstate Commerce Commission has announced the appointment of Frank S. Fowler as Director of the Bureau of Accounts, effective December 1. Mr. Fowler takes the place formerly held by Alexander Wylie who retired November 30. The commission announcement states that Mr. Fowler has been Assistant Director of the Bureau of Accounts for the last 14 years.

Pennsylvania Utility Body Grants Intrastate Rate Rise

The Public Utility Commission of Pennsylvania, on November 30, issued a decision vacating and setting aside a previous order suspending intrastate rate increases filed by roads operating within the state, to conform with the interstate rate rise on specified commodities authorized by the Interstate Commerce Commission in its Ex Parte 115 decision. By reason of the new order, the intrastate rate rises went into effect on December 3.

Rail Retirement Act Amendment Proposed

Representative Taylor of Tennessee has introduced in the House of Representatives a bill (H.R. 8509) to amend the Railroad Retirement Act so as to count as "years of service" for a prospective annuitant the time such individual on furlough may have spent in the armed forces of the United States during any war, the time an individual while in the employment relations shall have been absent on account of sickness or disability not due to his own misconduct and the number of years an indi-

vidual shall have been on furlough or disqualified for railway service as a result of sickness or an injury sustained while in the service not the result of his own misconduct, regardless of whether or not such individual received remuneration from his employer for such time off. Also, the bill would reduce from 30 to 25 the number of years of service which make eligible for annuities individuals without regard to age who are "totally and permanently disabled for regular employment for hire."

Rock Island Would Buy Truck Route from Burlington

The Rock Island Transit Company, affiliate of the Chicago, Rock Island & Pacific, has applied to the Interstate Commerce Commission for authority to purchase from the Burlington Transportation Company, affiliate of the Chicago, Burlington & Quincy, operating rights of the Bell Transfer, Inc., truck route between Des Moines, Iowa, and Minneapolis-St. Paul, Minn. No equipment or facilities are involved in the transaction which involves a purchase price of \$2,300.

A.C.L. Palmetto Limited Extended To Florida

Effective December 1, the Atlantic Coast Line will extend the southern terminus of its Palmetto Limited to Jacksonville, Fla. Heretofore the train has operated between New York and Savannah, Ga. Carrying coach and Pullman equipment, the train will leave New York at 3:30 p. m., daily, arriving at Jacksonville at 2:25 p. m., the next day. Northbound, the train will leave Jacksonville at 9:50 a. m., with next morning arrival at New York at 9:05 a. m.

Rail Historians to Hear Talk on Chemical Cars

Discussion of the important part in the chemical industries which the construction and operation of modern bulk-movement chemical tank cars plays is the featured item in the program of the next meeting of the New York chapter, Railway & Locomotive Historical Society, to be held on December 10 in the Engineering Societies building, New York. Victor Willoughby, general mechanical engineer, American Car & Foundry Co., New York, will present a paper on the subject entitled "Chemistry and Transportation," to be illustrated with slides.

Trunk Used to Steal Merchandise

By substituting merchandise for magazines and newspapers in a trunk while en route, two employees of the Illinois Central were able to steal several thousand dollars in merchandise during the last two years. The employees were held to the grand jury at Chicago on November 24, after they were reported to have signed confessions. The men had been employed by the railroad 24 and 22 years respectively. Under the scheme employed by these men, a trunk of magazines and newspapers would be shipped by express, addressed to either man at some point along the railroad at a time when one was working on the same train. During the run,

I.C.C. Not Always as Enthusiastic for Earnings Pool as It Now Is

Nor is it at all certain that it is a bad thing for the country that some railroads should be able to earn more than ordinarily generous returns, in view of the hazards to railroad earnings which have become so clearly manifest in the light of recent events. The opportunity to earn more than ordinary profits in exceptional cases is an inducement, when such hazards exist, to investment which might not otherwise be made.

From the Annual Report of the I.C.C. for 1932 Recommending Repeal of Recapture

the merchandise stolen from shipments on the car would be substituted for the magazines and papers. It would then be sent to the home of one of the men. A Railway Express employee, who has been with the company for 27 years and worked on the same runs with the two Illinois Central employees, denied implication in the thefts, but was held with them.

S. A. L. Truck Operations

Joint Board No. 103 of the Interstate Commerce Commission, in a proposed report to the commission, has recommended that it authorize the receivers of the Seaboard Air Line to extend their motor vehicle operations over a specified route between Hamlet, N. C., and Sanford. The Joint Board has also recommended that the commission deny the applications of the receivers to operate over the following routes: between Sanford, N. C., and Raleigh; between Hamlet, N. C., and Wilmington; between Monroe, N. C., and Rutherfordton; and between Raleigh, N. C., and Henderson.

Arch-Bar Date Extended

In a letter to all car owners signed by J. M. Symes, vice-president, A. A. R., Operations & Maintenance department, attention is called to an extension of the date when cars with arch-bar trucks will not be accepted in interchange from car owners. The board of directors of the association considered this matter and a number of applications for extension of its effective date at a meeting held at Chicago on Thursday, November 18, 1937. The board has directed that the effective date of this rule be extended until July 1, 1938, with the further provision that, after April 1, 1938, mileage or per diem shall not be paid car owners for cars equipped with arch-bar trucks.

Tank-Car Head-Block Anchorage Date Extended

In a letter to all tank car owners, Secretary V. R. Hawthorne, A. A. R. Mechanical Division, calls attention to Interchange Rule 3, Sec. (t), Par. (8), in the 1937 code, which provides that, effective January 1, 1938, tank cars having head-block anchorage will be prohibited

in interchange. Several requests for an extension of the above effective date were considered at a recent meeting of the Arbitration Committee, which approved a one-year extension in the effective date of this requirement, with the proviso that no further extension beyond January 1, 1939, will be granted. This action has been approved by the general committee.

Great Northern Talks to "Man on the Land"

Advertisements in the nature of talks addressed primarily to the man on the land—the farmer, the raiser of livestock and the fruit grower—are being published by the Great Northern in farm publications, rural dailies and weeklies for the purpose of bringing about a better understanding of the railway by the people in the territory it serves. The advertisements tell of the many ways in which the Great Northern serves and benefits the people along its lines entirely aside from the furnishing of efficient transportation. Two advertisements are published each month, one appearing in the rural dailies and certain of the farm papers and the second in the weeklies and other farm papers.

More Streamlined Trains to Los Angeles

The Atchison, Topeka & Santa Fe and the Union Pacific-Chicago & North Western will, about February 20, 1938, each establish a second 39¼-hr. train between Chicago and Los Angeles, Cal. Under this new arrangement, the Union Pacific-Chicago & North Western will provide a departure for its Streamliners City of Los Angeles from each terminal every third day, while the Santa Fe will operate its Super-Chiefs from Chicago on Tuesdays and Saturdays and from Los Angeles on Tuesdays and Fridays. The consist of the Union Pacific-Chicago & North Western streamliners will include both sleeping cars and coaches, while the Santa Fe Super-Chiefs will be operated in two sections, one for sleeping car passengers and the other for coach passengers.

Southern Governors Rate Complaint

An amended freight-rate complaint, designed to bolster the charge that railroads in Official territory are violating the anti-trust laws, has been filed with the Interstate Commerce Commission by governors of Southern states in No. 27746, The State of Alabama et al v. New York Central Railroad Company et al. Meanwhile the commission has granted several additional petitions for intervention in this proceeding.

Amendments to the complaint allege that "Defendants operating lines east and west in Official territory have in the past absorbed lines operating north from the Ohio river and thus have become able to monopolize and restrain competition in transportation by roads in Official territory which have connections with roads in Southern territory"; also, defendants "by consolidating the rail lines running north from the Ohio river with the lines in Official territory running east and west have been enabled to and have, in making rules

as hereinbefore stated, restrained commerce among the states of the United States in violation of the anti-trust laws thereof."

Congressional Committee Hearings

Senator Wheeler has announced that hearings will be held before the Senate Interstate Commerce Committee on December 7 on S. 1492 (the Neely bill) which provides for a six-hour day for train dispatchers. At the present time the indications are that there will be no hearings held by the committee on S. 1680 (the Black bill) which would provide for a six-hour day for all railroad employees.

Senator Wheeler has also set the date for further hearings by his sub-committee which has been investigating railroad financing. On December 6, the committee will look into the affairs of the Chicago, Milwaukee, St. Paul & Pacific, and on December 16, an investigation will be started of the Pennroad Corporation.

Chairman Lea of the House Committee on Foreign and Interstate Commerce, has set hearings on the so-called through routes bill, S. 1261, for December 16. The bill passed the Senate at the last session and is favored by the short line roads.

Club Meetings

The Metropolitan Traffic Association of New York will hold its next meeting on December 9 at the Imperial Hotel, New York. At this time there will be a forum meeting to be conducted by E. F. O'Hanlon, Union Carbide Company, New York, who will discuss the subject "Routing Freight."

The Railway Club of Pittsburgh (Pa.) will hold its next meeting on December 16, at the Fort Pitt hotel, Pittsburgh. At that time a paper entitled "Freight Car Construction of the New Welded Light-Weight Type" is to be presented by a representative of the Pullman-Standard Car Manufacturing Company, illustrated by a motion picture sound film.

The Central Railway Club of Buffalo (N. Y.) will hold its next meeting on December 7 at the Statler hotel, Buffalo. The program is termed "annual terminal trainmasters' and general yardmasters' night." William J. McGarry, manager, Car Service division, Association of American Railroads, will deliver an address entitled "Efficiency in Car Handling." There will also be held an election of officers for 1938.

C. N. R. Opens New Line

Official opening of the new Canadian National line between Senneterre and Val d'Or in Quebec's northern mining area took place on December 1. From now on, a mixed train will operate between the two points twice daily except Sunday. It will leave Val d'Or at 8:45 a.m. arriving at Senneterre at 10:45; leave Senneterre at 12:05 p.m. reaching Val d'Or at 2:05; starting from Val d'Or again at 3:15, it will reach Senneterre at 5:15, returning to Val d'Or an hour later, arriving at 8:15. Direct connections are made at Senneterre with trains to and from Montreal.

The 36 miles between Senneterre and

A Few Reasons Why More Rail Revenue Is Needed

Due to rising costs of materials and supplies, fuel, taxes and wages, costs of railway operation in the United States are now running at the rate of \$664,789,000 a year more than in 1933.

More than one-half the total increase in railway operating cost is due to new Federal taxes and to the rising prices of material and supplies and fuel which the railroads must buy.

Average revenue per ton-mile and per passenger mile has steadily declined until today the railroads haul a ton of freight one mile for an average of less than one cent and carry a passenger one mile for less than two cents.

Railroad operating efficiency has steadily increased since 1922 and even during the past four years, although these years constituted a period of depressed traffic and reduced revenues.

Because of higher operating costs, the net railway operating income of Class I railroads in August, this year, was 22 per cent below the same month last year, and in September, 15 per cent below September, 1936.

There has not been a real freight car shortage in the United States since 1922.

Ninety-six railroad companies operating 71,386 miles of line or 28 per cent of the total railway mileage of the United States are now in the hands of receivers or trustees.

—From the Association of American Railroads

Val d'Or comprise the first leg of a 99-mile line which will push southwesterly to Noranda, connecting with the branch from Taschereau. Construction of the other 63 miles is proceeding.

The loop formed by the National Transcontinental line between Senneterre and Taschereau and the new line taking in Val d'Or and Noranda serves a rich and rapidly growing mining and agricultural area. When the Transcontinental was opened in 1915, the district of Abitibi was nothing more than a vast wooded wilderness. The railway made possible the development of the territory. In 15 years, the population of Abitibi increased to 50,000 and some 1,500,000 acres of arable land have been settled, while the mineral wealth has been developed to the extent that total investments in the mines and prospects have now reached a market value of \$300,000,000.

Duesenberry Succeeds Edwards on Car Service Division

J. F. Duesenberry, resident car service agent of the Association of American Railroads of Buffalo, N. Y., has been appointed district manager of the Car Service division, A.A.R., at Dallas, Tex., to succeed

R. W. Edwards, who retired from active duty on December 1. Mr. Duesenberry has been with the Car Service division and the predecessor section of the United States Railroad Administration since 1918. He started his railroad career in 1907 as a yard clerk on the Louisville & Nashville, later serving in various capacities in the operating departments of the Alton, the Minneapolis & St. Louis and the Virginian.

Mr. Edwards has more than 58 years railroad service. He started his railroad career as a messenger boy in the train dispatcher's office of the St. Paul & Sioux City (now part of the Chicago & North Western), and later served with various railroads throughout the country. During the war he was in charge of the field forces of the Car Service section of the Division of Operation of the U.S.R.A., at Washington, and after the return of the railroads to private control in 1920, he remained with the successor organization, the Car Service division of the American Railway Association. Later in the same year he was appointed superintendent of car service of the Missouri-Kansas-Texas, returning to the Car Service division as district manager at Detroit in 1923. Two years later he was transferred to Birmingham and early in 1930 he was sent to Dallas.

Westchester Towns Propose to Slice N. Y. W. & B. Taxes in Half

A reduction of 50 per cent in tax assessments for 1936 and 1937 levied against the New York, Westchester & Boston, provided the road continues present operation during 1938, was promised by the mayors and corporation counsels of every community levying property taxes against the road, at a joint meeting held recently in White Plains, N. Y. The tax reduction plan has been under discussion ever since federal Judge John C. Knox ordered the co-receivers of the bankrupt electric carrier to discontinue service on the New Rochelle-Port Chester line on October 31 and to cease operation of the entire road on December 31. In reaffirming his order last month, Judge Knox clearly indicated that he considered the tax burden a dominant factor in the road's inability to make ends meet.

This decision of the municipal authorities to halve tax assessments is the outcome of negotiations started on November 15.

In issuing the decision, the municipal authorities made it clear that they considered the tax reduction only an initial measure for the complete solution of the Westchester problem and they recommend that a quasi-public body, under the jurisdiction of the state, assume ownership and operation of the road. This plan is in conformity with that drawn up by Westchester commuters' committee and made public by its chairman, William E. Schrammek (reported in the *Railway Age* of November 13, page 697).

Freight Car Loading

Loading of revenue freight for the week ended November 20 totaled 647,251 cars, a decrease of 42,363 cars or 6.1 per cent under the preceding week, a decrease

of 142,521 cars or 18 per cent under the corresponding week in 1936 and a decrease of 132,501 cars or 17 per cent under the same week in 1930. All commodity classifications except grain showed decreases under both the preceding week and the corresponding week of last year. The summary, as compiled by the Car Service Division, Association of American Railroads, follows:

Revenue Freight Car Loading For Week Ended Saturday, November 20			
Districts	1937	1936	1935
Eastern	140,359	168,857	144,526
Allegheny	118,469	158,676	123,833
Pocahontas	41,718	56,532	46,778
Southern	95,713	113,642	92,426
Northwestern	79,128	99,834	80,621
Central Western	114,327	124,164	102,389
Southwestern	57,537	68,067	57,351
Total Western			
Districts	250,992	292,065	240,361
Total All Roads	647,251	789,772	647,924
Commodities			
Grain and Grain			
Products	39,599	36,905	33,370
Live Stock	16,642	19,337	15,412
Coal	127,894	164,231	132,537
Coke	6,602	11,294	7,843
Forest Products	26,805	36,417	28,562
Ore	12,046	26,429	11,837
Merchandise			
L.C.L.	159,846	170,022	160,879
Miscellaneous	257,817	325,137	257,484
November 20	647,251	789,772	647,924
November 13	689,614	784,980	629,728
November 6	732,145	759,615	654,947
October 30	771,655	814,514	681,998
October 23	773,353	816,242	710,621
Cumulative Total,			
47 Weeks	35,125,174	32,605,358	28,609,734

In Canada.—Car loadings for the week ended November 20 declined to 54,009 from 54,597 for the previous week, according to the statement of the Dominion Bureau of Statistics. Last year's loadings for the corresponding week were 53,606, but included a holiday.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada:		
November 20, 1937	54,009	25,790
November 13, 1937	54,597	26,355
November 6, 1937	56,987	26,978
November 14, 1936	53,606	26,631
Cumulative Totals for Canada:		
November 20, 1937	2,354,187	1,221,903
November 14, 1936	2,193,105	1,072,120
November 16, 1935	2,095,847	980,020

Carriers Nationalized in "Loyalist" Spain

All of the Spanish railroads located within the territory held by the "Loyalist" or Valencia government are to be unified into a national system, under what virtually amounts to state control, by a government decree issued at Valencia in October 23, it is reported by the Railway Gazette (London). Under the decree, "all the assets and liabilities" of the private companies are to be transferred to the state under the direction of a "National Railway Council," whose president will be the Minister of Public Works and membership to be composed of nine representatives of the state, six nominees of labor "syndicates," and three technical executives.

This latest action of the "Popular Front" government brings about no profound changes in the ownership status of most of the carriers in "Loyalist" territory since by a decree of August 3, 1936, these roads were provisionally placed in the hands of workers' committees. The nationalization decree, in effect, makes permanent the transference of the lines from private control and unifies their management.

General Electric Opens New Plastics Plant

The plastics department of the General Electric Company has recently opened a new molding plant at 1 Plastics avenue, Pittsfield, Mass., which is entirely devoted to the research, development, design, and manufacture of molded plastics products. Representing an investment of approximately one million dollars, the new plant is the scene of the major part of its plastics activities.

In the plastics manufacturing industry it is the custom of the molder to hold and store molds after initial production, for the customer's subsequent use. At present the vault at the Pittsfield plant contains some 6,000 molds with a value of approximately two million dollars. 2,700 additional molds

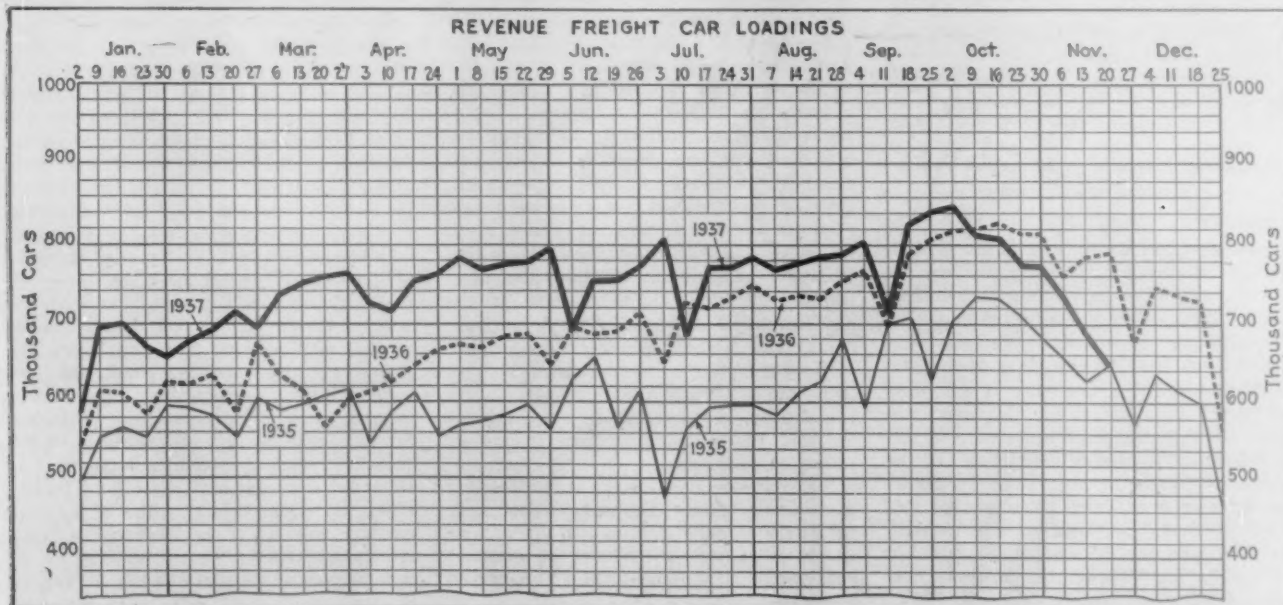
are stored in the Meriden, Conn., and Fort Wayne, Ind., plants.

Approximately 40 per cent of the total engineering expense is devoted to the research and development of new materials, —the aim being to make better compounds at lower cost, to develop new synthetic compounds to supplement or replace those now in use, continually searching for new sources of raw material, some of which have not previously been used in plastics.

New York C. of C. Resolution Opposes Rate Bill

Resolutions advocating the modification of rates to bring about adequate revenues for the carriers and declaring opposition to Congressman Ramspeck's bill providing for rate-fixing by federal legislation are among those reports to be acted upon by the Chamber of Commerce of the State of New York at its meeting on December 2, in New York City. The former resolution, which has been drawn up by F. E. Hasler, chairman of the committee on internal trade and improvements, expresses confidence that "the Interstate Commerce Commission will thoroughly consider the petition of the railroads pending before it, by which they seek an increase in freight and passenger rates, duly weighing the needs of the railroads for increased revenue, the importance of railroad transportation for the country as a whole, and the effect of increased rates upon the movement of traffic and upon travelers and shippers." The resolution further expresses the desire that the commission reach a determination with all possible speed consistent with a thorough investigation of the issues involved.

Opposition to the establishment of rate-making principles by congressional action, as advocated in the so-called Ramspeck Bill (H.R. 2927), is expressed in the second resolution, also presented by Mr. Hasler. The bill in question would amend the Interstate Commerce Act to establish by legislation a rate principle equalizing charges on goods moving between classification territories with intra-territory rates.



The resolution takes exception to the bill particularly because it takes from the commission a part of its authority over rate-making, creating "a football of politics" of "the rate-making business", and because it establishes a hard-and-fast rule which the commission must follow, regardless of other considerations.

Such a rigid principle, the resolution points out, would endanger the economic structure by disturbing the location of industries. "The present freight rate structure is the result of a slow evolution extending over many years. To make suddenly material changes in this structure may lead to drastic and disturbing results."

August Accident Statistics

The Interstate Commerce Commission's completed statistics of steam railway accidents for the month of August, 1937, now in preparation for the printer, will show:

Item	Month of August		8 mos. ended with August	
	1937	1936	1937	1936
Number of train accidents	685	625	5,886	5,494
Number of casualties in train, train-service and non-train accidents:				
Trespassers:				
Killed	320	314	1,815	1,843
Injured	319	309	1,882	1,906
Passengers on trains:				
(a) In train accidents:				
Killed .....	.....	.....	.....	6
Injured ..	24	10	336	497
(b) In train-service accidents:				
Killed	2	1	8	4
Injured ..	228	156	1,314	1,146
Travelers not on trains:				
Killed .....	.....	.....	8	11
Injured	69	65	513	517
Employees on duty:				
Killed	58	55	459	428
Injured	2,255	1,879	16,481	14,166
All other nontrespassers:				
Killed	167	140	1,269	1,137
Injured	520	504	4,425	4,168
Total—All classes of persons:				
Killed	547	510	3,559	3,429
Injured	3,415	2,923	24,951	22,400

* Train accidents are distinguished from train-service accidents by the fact that the former cause damage of more than \$150 to railway property.

† Casualties to "Other nontrespassers" happen chiefly at highway grade crossings. Total highway grade-crossing casualties for all classes of persons, including both trespassers and nontrespassers, were as follows:

Number of accidents.	300	273	2,733	2,483
Persons:				
Killed	146	118	1,144	1,021
Injured	314	308	3,090	2,883

Reading Formally Accepts Stainless-Steel Train

The first lightweight stainless-steel streamline train for service in the Middle Atlantic States was formally delivered to the Reading Company by the Edward G. Budd Manufacturing Co. at Philadelphia on November 29. The ceremonies were conducted before a microphone of the National Broadcasting Company at the Market Street Terminal of the Reading Company at Philadelphia, Pa., with a group of invited guests and a large crowd of the interested public in attendance. Following the speech of formal delivery by Edward G. Budd, president of the building company and the acceptance by Edward W. Scheer, president of the Reading Company, felicitations were offered by H. L.

Andrews, vice-president, General Electric Company, representing industry, by Mayor S. Davis Wilson of Philadelphia, and by City Commissioner Arthur Potterton, representing Mayor Frank Hague of Jersey City, N. J. The principal address was delivered by Governor Harold G. Hoffman of New Jersey, after which the whistle of the train itself was heard in the microphone, followed by a salute of whistles from all locomotives and motor cars in the terminal.

At the completion of the ceremonies in the terminal a party of 150, including press representatives, officers of companies supplying equipment for the train, and directors of the railroad were the guests of the railroad and the builders on a run from Philadelphia to Hershey, Pa., and return, with lunch at the Hotel Hershey.

The train consists of five lightweight stainless-steel streamline coaches, arranged symmetrically about a diner-tavern car at the middle, and a steam locomotive which has been rebuilt and fitted with a streamline jacket by the railroad at its Reading shops. The train is arranged for operation in either direction without turning the coaches and on December 13 will be placed on a fast schedule over the Reading-Jersey Central line between New York and Philadelphia.

A detailed description of the train will appear in the December 11 issue of the *Railway Age*.

Coal Commission Sets Minimum Prices

In the face of Congressional resolutions calling for an investigation of its activities, the National Bituminous Coal Commission, on November 30, published prices for all bituminous coal producing areas east of the Mississippi river and for the state of Iowa. The prices will become effective at 12:01 a.m. on December 16. The commission's announcement states that "the prices established for industrial and railroad fuel purposes are somewhat higher than heretofore, being brought into line with the cost of production as provided for in the Bituminous Coal Act of 1937. Prices for domestic sizes, however, are generally lower than average prices for such grades in the past."

The prices for railroad coal ranges from a low of \$1.95 per ton to a high of \$3.55 per ton, and, according to the commission announcement, are generally in line with the cost of producing. The commission goes on to state that the question of railroad fuel prices was first considered by it last week and that "as in the case of other fundamental questions touching the effectiveness of the law, the commission was unanimous in deciding to take up this matter and in the adoption of the prices".

In case any code member is dissatisfied with the minimum price as set by the commission, he may petition for a rehearing and the commission may change its orders at any time.

Simultaneously with the announcement of minimum prices, the commission made public the marketing rules and regulations which will govern the sale of all bituminous coal in Districts 1 to 13 inclusive, comprising all producing areas east of

the Mississippi and the State of Iowa. Some 4,000 rules, says the commission, as suggested by the district boards affected were coordinated into 11 sections containing 141 subsections and sub-paragraphs. The 11 sections cover, respectively, definitions, sales agents, registration of wholesalers, farmers cooperative organizations, discounts and allowances, limitations of orders, agreements and quotations, spot orders, use of coal analyses, terms of payment, crushing and pulverizing of coal and miscellaneous.

In commenting on its action the commission made the following statement:

"The bituminous coal industry has suffered for years from cut-throat competition which has forced prices for industrial coals far below the cost of production. The first step in revitalizing the industry, therefore, was to bring prices generally in line with the average cost of production and it is this that today's action accomplishes. Through this accomplishment, decent wage and working standards will be maintained, the consumer will be protected against high prices which inevitably will result from continued waste of the coal reserves, and business generally will be assisted by re-establishing the full purchasing power of the 500,000 or more persons who work in the industry."

Roosevelt Hits Highway Spending

As a step toward balancing the budget President Roosevelt, in a special message to the Congress on November 30, recommended that it decrease the sum appropriated for federal aid to state highways by at least \$100,000,000 a year beginning with the next fiscal year. Specifically, the President urged the following policies:

1. Provide for the cancellation of the 1939 authorizations prior to January 1, 1938, by which date the Secretary of Agriculture is required to apportion to the various states \$214,000,000 of such authorizations.

2. Limit to not more than \$125,000,000 per annum all public road authorizations for the fiscal year 1940 and for each of the next few succeeding years.

The President pointed out that the present practice regarding the allocating of federal highway funds is for the Congress to make authorizations in a lump sum and then have the Secretary of Agriculture apportion this money to the several states. According to the President, the approval of a state road project by the Secretary of Agriculture constitutes a contractual obligation on the part of the United States "regardless of the availability of appropriations for their payment and of the fiscal outlook of the Treasury". The President objects to the fact that "this mandatory provision completely ties the hands of the Executive as to the amount of road funds to be included in the Budget for any fiscal year". While he does not object to the apportionment among the states of such amounts as may be authorized for appropriation, the President's message went on to say that he did "most strenuously object to the mandatory incurrence of obligations by the Federal Government under such apportionments

without regard to its ability to finance them from its revenues". To remedy this so-called evil, the President would have the Congress repeal that portion of the public roads law which makes this practice possible.

The President's message also pointed out the fact that since the enactment of the first Federal-Aid Highway Act in 1916, the federal government has contributed more than \$3,100,000,000. Out of this amount \$1,490,000,000 has been made available during the last five years. The annual average for the past five years of \$298,000,000 was contrasted with an annual average of less than \$100,000,000 for the five-year period preceding the depression.

General dissatisfaction and signs of revolt in the Democratic ranks became increasingly evident after the receipt of the President's message. Prominent members of both houses expressed the opinion that if the budget is to be balanced, this is not the proper place to begin nor is it fair for road building to bear the brunt of the economy attack. Observers feel that there is little likelihood of the President's aims being achieved in the light of the strong fight that will most likely be waged by those senators and representatives who have the most to gain in a large government-aided highway building program.

Mexico Outlines Conditions for Employee Operation of Railways

In a memorandum sent to the Union of Railroad Workers of Mexico, Lazaro Gardenas, president of Mexico, on November 25 outlined the conditions under which the union may take over the management of the National Railways of Mexico, the principal point being the demand that the employees pay the government 14,000,000 pesos or \$3,780,000 a year. Of this amount 9,000,000 pesos will represent interest; 2,000,000 pesos the payment of principal, and 3,000,000 pesos the amount to be retained by the government. Other conditions mentioned in the letter include the establishment of a workers' reserve fund, from which may be taken whatever amounts are necessary during years of depression, the appointment of the general manager by the union and the appointment of the head of the railroad department by the government. The latter will be the link between the federal government and the new management, and the department will have full representation before the courts of the country. It will handle all matters pertaining to investments and appropriations, as well as with the sale of obsolete property.

The union objects to the 14,000,000 pesos requirement and will offer the government 12,500,000 pesos after a year's operation by the workers reveals what can be done. It also objects to the power given the head of the railroad department, insisting that more authority be given the union so that full responsibility may be demanded.

New Plan for Frisco

The St. Louis, San Francisco, on November 24, filed with the Interstate Commerce Commission and the United States District Court for the eastern district of

Missouri a modified plan of reorganization which provides for a reduction from \$13,000,000 to \$3,956,000 in its fixed charges. Under the modified plan the outstanding issue of \$9,190,000 of equipment trust certificates and the \$6,506,200 of Kansas City, Memphis & Birmingham bonds will remain undisturbed. There will also be an issue of 3¾ per cent first mortgage bonds in the amount of \$86,720,000, the interest on which would be only \$3,252,000. The plan also provides for the issuance of \$61,309,600 of 4 per cent income bonds, \$50,487,800 of 5 per cent prior preferred stock, 292,944 shares of preferred stock, and 1,452,062 shares of common stock.

The holders of the Kansas City, Fort Scott & Memphis bonds will receive \$16,792,700 of first mortgage bonds, \$9,042,300 of income bonds and 21,606 shares of common. The outstanding \$91,887,100 prior lien, series A bonds would be exchanged for \$27,566,100 of first mortgage bonds; \$18,377,400 of income bonds; \$22,971,800 of prior preferred stock and 181,998 shares of common. The holders of the outstanding \$25,561,500 of prior lien, series B bonds would receive \$7,668,400 of first mortgage bonds; \$5,112,300 of income 4s, \$6,390,400 of prior preferred stock and 56,256 shares of common. For the consolidated, series A bonds, of which there are \$108,305,000 outstanding, there will be issued \$27,076,200 of first mortgage bonds; \$21,661,000 of income bonds; \$16,245,800 of prior preferred stock and 294,372 shares of common. The holders of the consolidated, series B bonds, \$10,000,000 outstanding, will get \$2,500,000 of first mortgage bonds; the same amount of income bonds; \$1,027,300 of prior preferred stock and 6,582 shares of common.

Also, under the modified plan, the debtor corporation would issue 655,432 shares of new common stock for the \$65,543,200 of old common and 294,944 shares of new preferred and 196,630 shares of new common for the \$49,157,400 of old preferred.

The Reconstruction Finance Corporation loans, which total \$5,190,000, would be exchanged for \$2,076,000 of first mortgage bonds; a like amount of income bonds; \$1,038,000 of prior preferred stock and 6,588 shares of common. The Railroad Credit Corporation, which is a creditor to the extent of \$3,286,100, would receive for its loans \$985,000 of first mortgage bonds; \$985,000 of income bonds; \$1,314,500 of prior preferred stock and 1,566 shares of common. The holders of bank loans, which aggregate \$5,136,000, will receive \$2,054,800 of first mortgage bonds; the same amount of income bonds; \$1,027,300 of prior preferred stock and 6,582 shares of common stock.

Present capitalization of \$405,598,400 would thus be reduced to \$388,914,200—only \$102,416,200 of the latter bearing fixed interest.

The present modified plan is the result of the refusal of the commission to approve the debtor's plan previously submitted to it. The commission turned down the former plan in March of this year and ordered that a new or modified plan be filed. Hearings will probably be set for an early date.

Shipping Aided by Government

(Continued from page 807)

carried a total of 2,481,684 tons of freight, collecting a gross revenue of \$6,671,673.99. Its total expenses, including depreciation, were \$6,500,194.94, leaving a net income of \$171,479.05. Also, "there was collected a total of \$594,211.25 depreciation funds, which, deposited with the general fund, makes a total reserve fund as of June 30, 1937, of \$4,804,894.35." Independent auditors reported the Corporation's net worth as of December 31, 1936, to be \$24,492,921.54, and "certified that the accounting records of the Corporation were consistently kept in accordance with the classification of accounts prescribed by the Interstate Commerce Commission."

The report's section on the Panama Canal first discusses recent legislation with respect to the measurement system for the determination of toll charges. It continues to give figures on the canal's operations, which during the year under review resulted in a deficit of \$2,442,299.43, after allowing for interest charges at the rate of three per cent. This compares with a deficit of \$947,254 for the previous year. The above-mentioned Panama Railroad Company's net of \$1,519,629 was derived from gross revenues of \$14,553,291, expenses of \$13,411,773 and miscellaneous profit of \$378,111. This company not only operates its rail line but also furnishes most of the Panama Canal's auxiliary services, including harbor facilities, commissaries and a steamship line from the United States.

October's N.O.I. 32% Under '36

(Continued from page 806)

\$3,340,656,001 in 1930—1937 being 8.3 per cent greater than the former, but 21.4 per cent below 1930.

Class I roads in the first 10 months paid \$279,498,971 in taxes compared with \$260,252,609 in the same period in 1936, and \$303,226,866 in the same period in 1930. For October alone the tax bill amounted to \$29,467,694, an increase of \$22,671 or 3.2 per cent above October, 1936. Twenty-one Class I roads failed to earn expenses and taxes in the first 10 months of 1937, of which nine were in the Eastern district, three in the Southern district, and nine in the Western district.

Class I roads in the Eastern district for October had a net railway operating income of \$31,276,056 compared with \$45,269,600 for October, 1936, and \$47,274,716 for October, 1930. The Eastern district's ten-months net was \$301,159,421, or 2.87 per cent, as compared with \$310,379,725 or 2.97 per cent in 1936, and \$388,453,595 or 3.83 per cent in 1930. Gross in the Eastern district for the 10 months totaled \$1,765,375,994, an increase of 5.4 per cent compared with 1937, but a decrease of 21.2 per cent compared with 1930; operating expenses totaled \$1,367,252,456, an increase of 7.5 per cent above the same period in 1936, but a decrease of 23.4 per cent under the first 10 months of 1930.

Class I roads in the Southern district for October had a net of \$6,602,944 com-

pared with \$9,435,331 for October, 1936, and \$10,146,795 for October, 1930; for the first 10 months of 1937 their net was \$64,352,188, or 2.41 per cent. For the same period in 1936, it was \$62,339,537, or 2.34 per cent, and for the same period in 1930 it was \$73,164,143, or 2.63 per cent. Gross in the Southern district for the 10 months amounted to \$435,406,059, an increase of 6.5 per cent compared with the same period in 1936, but a decrease of 20.1 per cent under the same period in 1930; operating expenses totaled \$326,646,554, an increase of 6.6 per cent above 1936, but a decrease of 23.7 per cent under 1930.

For October, the Class I roads in the Western district reported a net of \$22,868,445 compared with \$35,104,441 for October, 1936, and \$53,501,838 for October, 1930. For the first 10 months in 1937 their net was \$165,258,408 or 1.82 per cent, as compared with \$151,572,844, or 1.67 per cent, in 1936; for the same period in 1930 it was \$297,420,898 or 3.21 per cent. Gross in the Western district for the first 10 months amounted to \$1,346,785,349, an increase of 8.8 per cent above the same period in 1936, but a decrease of 22.0 per cent under the same period in 1930. Operating expenses totaled \$1,032,515,876, an increase of 9.9 per cent compared with the same period in 1936, but a decrease of 17.9 per cent under 1930.

Meetings and Conventions

The following list gives names of secretaries, date of next or regular meetings and places of meetings:

- AIR BRAKE ASSOCIATION.**—R. P. Ives, Westinghouse Air Brake Co., 350 Fifth Ave., New York, N. Y.
- ALLIED RAILWAY SUPPLY ASSOCIATION.**—J. F. Gettrust, 1108 New Post Office Bldg., Chicago, Ill.
- AMERICAN ASSOCIATION OF FREIGHT TRAFFIC OFFICERS.**—W. R. Curtis, F. T. R., M. & O. R. R., 327 S. La Salle St., Chicago, Ill.
- AMERICAN ASSOCIATION OF GENERAL BAGGAGE AGENTS.**—E. L. Duncan, 816 McCormick Bldg., Chicago, Ill.
- AMERICAN ASSOCIATION OF PASSENGER TRAFFIC OFFICERS.**—B. D. Branch, C. R. R. of N. J., 143 Liberty St., New York, N. Y.
- AMERICAN ASSOCIATION OF RAILROAD SUPERINTENDENTS.**—F. O. Whiteman, Union Station, St. Louis, Mo. Annual meeting June 7-9, 1938, The Stevens, Chicago, Ill.
- AMERICAN ASSOCIATION OF RAILWAY ADVERTISING AGENTS.**—E. A. Abbott, Poole Bros., Inc., 85 W. Harrison St., Chicago, Ill. Annual meeting, January 14-15, 1938.
- AMERICAN ASSOCIATION OF SUPERINTENDENTS OF DINING CARS.**—F. R. Borger, C. I. & L. Ry., 836 S. Federal St., Chicago, Ill.
- AMERICAN RAILWAY BRIDGE AND BUILDING ASSOCIATION.**—C. A. Lichty, 319 N. Waller Ave., Chicago, Ill.
- AMERICAN RAILWAY CAR INSTITUTE.**—W. C. Tabbert, 19 Rector St., New York, N. Y.
- AMERICAN RAILWAY DEVELOPMENT ASSOCIATION.**—E. J. Hoddy, Louisville & Nashville R. R., Louisville, Ky.
- AMERICAN RAILWAY ENGINEERING ASSOCIATION.**—Works in co-operation with the Association of American Railroads, Engineering Division.—Frank McNellis (Asst. Secy.), 59 E. Van Buren St., Chicago, Ill. Annual meeting, March 15-17, 1938, Palmer House, Chicago, Ill. Exhibit by National Railway Appliances Association, March 14-17, International Amphitheatre, Union Stockyards, Chicago, Ill.
- AMERICAN RAILWAY MAGAZINE EDITORS' ASSOCIATION.**—M. W. Jones, Baltimore & Ohio R. R., Mt. Royal Station, Baltimore, Md.
- AMERICAN RAILWAY TOOL FOREMEN'S ASSOCIATION.**—G. G. Macina, C. M., St. P. & P. R. R., 11402 Calumet Ave., Chicago, Ill.
- AMERICAN SHORT LINE RAILROAD ASSOCIATION.**—R. E. Schindler, Union Trust Bldg., Washington, D. C.
- AMERICAN SOCIETY OF MECHANICAL ENGINEERS.**—C. E. Davies, 29 West 39th St., New York, N. Y. Annual meeting, December 6-10, 1937, 29 W. 39th St., New York, N. Y. Railroad Division.—Marion B. Richardson, 21 Hazel Ave., Livingston, N. J. Next meeting, December 9, 1937, 29 W. 39th St., New York, N. Y.
- AMERICAN TRANSIT ASSOCIATION.**—Guy C. Hecker, 292 Madison Ave., New York, N. Y. Annual meeting, September, 1938, Atlantic City, N. J.
- AMERICAN WOOD PRESERVERS' ASSOCIATION.**—H. L. Dawson, 1427 Eye St., N. W., Washington, D. C. Annual meeting January 18-20, 1938, Congress Hotel, Chicago, Ill.
- ASSOCIATION OF AMERICAN RAILROADS.**—H. J. Forster, Transportation Bldg., Washington, D. C.
- Operations and Maintenance Department.**—J. M. Symes, Vice-President, Transportation Bldg., Washington, D. C.
- Operating-Transportation Division.**—L. R. Knott, 59 E. Van Buren St., Chicago, Ill.
- Transportation Section.**—L. R. Knott, 59 E. Van Buren St., Chicago, Ill.
- Freight Station Section.**—L. R. Knott, 59 E. Van Buren St., Chicago, Ill.
- Operating Section.**—J. C. Caviston, 30 Vesey St., New York, N. Y.
- Medical and Surgical Section.**—J. C. Caviston, 30 Vesey St., New York, N. Y.
- Protective Section.**—J. C. Caviston, 30 Vesey St., New York, N. Y.
- Safety Section.**—J. C. Caviston, 30 Vesey St., New York, N. Y.
- Telegraph and Telephone Section.**—W. A. Fairbanks, 30 Vesey St., New York, N. Y. Annual meeting, October 18-20, 1938, Hotel Jefferson, St. Louis, Mo.
- Engineering Division.**—Frank McNellis (Asst. Secy.), 59 E. Van Buren St., Chicago, Ill. Annual meeting, March 15-17, 1938, Palmer House, Chicago, Ill. Exhibit by National Railway Appliances Association, March 14-17, International Amphitheatre, Union Stockyards, Chicago, Ill.
- Construction and Maintenance Section.**—Frank McNellis (Asst. Secy.), 59 E. Van Buren St., Chicago, Ill. Annual meeting, March 15-17, 1938, Palmer House, Chicago, Ill.
- Electrical Section.**—Frank McNellis (Asst. Secy.), 59 E. Van Buren St., Chicago, Ill.
- Signal Section.**—R. H. C. Balliet, 30 Vesey St., New York, N. Y. Annual meeting, April 5-7, 1938, Roosevelt Hotel, New Orleans, La.
- Mechanical Division.**—V. R. Hawthorne, 59 E. Van Buren St., Chicago, Ill.
- Electrical Section.**—J. A. Andreucetti, C. & N. W. Ry., 1519 Daily News Bldg., 400 W. Madison St., Chicago, Ill.
- Purchases and Stores Division.**—W. J. Farrell, 30 Vesey St., New York, N. Y.
- Freight Claims Division.**—Lewis Pilcher, 59 E. Van Buren St., Chicago, Ill.
- Motor Transport Division.**—George M. Campbell, Transportation Bldg., Washington, D. C.
- Car-Service Division.**—C. A. Buch, Transportation Bldg., Washington, D. C.
- Finance, Accounting, Taxation and Valuation Department.**—E. H. Bunnell, Vice-President, Transportation Bldg., Washington, D. C.
- Accounting Division.**—E. R. Ford, Transportation Bldg., Washington, D. C. Annual meeting, 1938, Toronto, Ont.
- Treasury Division.**—E. R. Ford, Transportation Bldg., Washington, D. C.
- Traffic Department.**—A. F. Cleveland, Vice-President, Transportation Bldg., Washington, D. C.
- ASSOCIATION OF RAILWAY CLAIM AGENTS.**—F. L. Johnson, Claim Agent, Alton R. R., 340 W. Harrison St., Chicago, Ill. Annual meeting, May 18-20, 1938, Statler Hotel, St. Louis, Mo.
- ASSOCIATION OF RAILWAY ELECTRICAL ENGINEERS.**—(See Association of American Railroads.—Mechanical Division.—Electrical Section.)
- BRIDGE AND BUILDING SUPPLY MEN'S ASSOCIATION.**—W. S. Carlisle, National Lead Company, 900 W. 18th St., Chicago, Ill. Meets with American Railway Bridge and Building Association.
- CANADIAN RAILWAY CLUB.**—C. R. Crook, 2271 Wilson Ave., N. D. G., Montreal, Que. Regular meetings, second Monday of each month, except June, July and August, Windsor Hotel, Montreal, Que.
- CAR DEPARTMENT OFFICERS' ASSOCIATION.**—Frank Kartheiser, Chief Clerk, Mechanical Dept., C. B. & Q., Chicago, Ill.
- CAR FOREMEN'S ASSOCIATION OF CHICAGO.**—G. K. Oliver, 2514 W. 55th St., Chicago, Ill. Regular meetings, second Monday of each month, except June, July and August, La Salle Hotel, Chicago, Ill.
- CAR FOREMEN'S ASSOCIATION OF ST. LOUIS, MO.**—E. G. Bishop, Illinois Central System, East St. Louis, Ill. Regular meetings, third Tuesday of each month except June, July and August, Statler Hotel, St. Louis, Mo.
- CENTRAL RAILWAY CLUB OF BUFFALO.**—Mrs. M. D. Reed, 1817 Hotel Statler, McKinley Square, Buffalo, N. Y. Regular meetings, second Thursday of each month except June, July and August, Hotel Statler, Buffalo, N. Y.
- EASTERN ASSOCIATION OF CAR SERVICE OFFICERS.**—J. T. Bougher, 424 W. 33rd St. (11th floor), New York, N. Y. Next meeting, March 31, 1938, Cleveland, Ohio.
- INTERNATIONAL RAILWAY GENERAL FOREMEN'S ASSOCIATION.**—F. T. James, General Foreman, Delaware, Lackawanna & Western, Kingsland, N. J.
- INTERNATIONAL RAILWAY MASTER BLACKSMITHS' ASSOCIATION.**—W. J. Mayer, Michigan Central R. R., Detroit, Mich.
- MASTER BOILER MAKERS' ASSOCIATION.**—A. F. Stiglmeier, 29 Parkwood St., Albany, N. Y.
- NATIONAL ASSOCIATION OF RAILROAD AND UTILITIES COMMISSIONERS.**—Clyde S. Bailey, 806-808 13th and E. Sts., N. W., Washington, D. C. Annual meeting, November 15-18, 1938, New Orleans, La.
- NATIONAL RAILWAY APPLIANCE ASSOCIATION.**—C. H. White, Room 1826, 208 S. La Salle St., Chicago, Ill. Exhibit at A. R. E. A. Convention, March 14-17, 1938, International Amphitheatre, Union Stockyards, Chicago, Ill.
- NEW ENGLAND RAILROAD CLUB.**—W. E. Cade, Jr., 683 Atlantic Ave., Boston, Mass. Regular meetings, second Tuesday of each month, except June, July, August and September, Hotel Touraine, Boston, Mass.
- NEW YORK RAILROAD CLUB.**—D. W. Pye, 30 Church St., New York, N. Y. Regular meetings, third Friday of each month, except June, July, August, September and December, 29 W. 39th St., New York, N. Y. Annual dinner, December 9, 1937, Hotel Commodore, New York, N. Y.
- PACIFIC RAILWAY CLUB.**—William S. Wollner, P. O. Box 3275, San Francisco, Cal. Regular meetings, second Thursday of each month, alternately at San Francisco and Oakland, except June at Los Angeles and October at Sacramento.
- RAILWAY BUSINESS ASSOCIATION.**—P. H. Middleton, First National Bank Bldg., Chicago, Ill.
- RAILWAY CLUB OF PITTSBURGH.**—J. D. Conway, 1941 Oliver Bldg., Pittsburgh, Pa. Regular meetings, fourth Thursday of each month, except June, July and August, Fort Pitt Hotel, Pittsburgh, Pa.
- RAILWAY ELECTRICAL SUPPLY MANUFACTURERS' ASSOCIATION.**—J. McC. Price, Allen-Bradley Company, 600 W. Jackson Blvd., Chicago, Ill.
- RAILWAY FIRE PROTECTION ASSOCIATION.**—P. A. Bissell, 40 Broad St., Boston, Mass.
- RAILWAY FUEL AND TRAVELING ENGINEERS' ASSOCIATION.**—T. Duff Smith, 1255 Old Colony Bldg., Chicago, Ill.
- RAILWAY SUPPLY MANUFACTURERS' ASSOCIATION.**—J. D. Conway, 1941 Oliver Bldg., Pittsburgh, Pa. To meet with Mechanical Division and Purchases and Stores Division, Association of American Railroads.
- RAILWAY TELEGRAPH AND TELEPHONE APPLIANCE ASSOCIATION.**—G. A. Nelson, Waterbury Battery Company, 30 Church St., New York, N. Y. Meets with Telegraph and Telephone Section of A. A. R.
- RAILWAY TIE ASSOCIATION.**—Roy M. Edmonds, 903 Syndicate Trust Bldg., St. Louis, Mo.
- ROADMASTERS' AND MAINTENANCE OF WAY ASSOCIATION.**—C. A. Lichty, 319 N. Waller Ave., Chicago, Ill. Annual meeting, September 20-22, 1938, Hotel Stevens, Chicago, Ill.
- SIGNAL APPLIANCE ASSOCIATION.**—G. A. Nelson, Waterbury Battery Company, 30 Church St., New York, N. Y. Meets with A. A. R., Signal Section.
- SOCIETY OF OFFICERS, UNITED ASSOCIATIONS OF RAILROAD VETERANS.**—J. W. O'Neill, Delaware, Lackawanna & Western, Hoboken, N. J.
- SOUTHERN AND SOUTHWESTERN RAILWAY CLUB.**—A. T. Miller, 4 Hunter St., S. E., Atlanta, Ga. Regular meetings, third Thursday in January, March, May, July, September and November, Ansley Hotel, Atlanta, Ga.
- SOUTHERN ASSOCIATION OF CAR SERVICE OFFICERS.**—D. W. Brantley, C. of Ga. Ry., Savannah, Ga. Annual meeting, January 27, 1938, Birmingham, Ala.
- TOOL FOREMEN SUPPLIERS' ASSOCIATION.**—H. W. Leighton (President), H. W. Leighton Company, 565 W. Washington St., Chicago, Ill.
- TORONTO RAILWAY CLUB.**—D. M. George, P. O. Box 8, Terminal "A," Toronto, Ont. Regular meetings, fourth Monday of each month, except June, July and August, Royal York Hotel, Toronto, Ont.
- TRACK SUPPLY ASSOCIATION.**—Lewis Thomas, Q. & C. Company, 59 E. Van Buren St., Chicago, Ill. Meets with Roadmasters' and Maintenance of Way Association.
- WESTERN RAILWAY CLUB.**—C. L. Emerson, C. M., St. P. & P., Chicago, Ill. Regular meetings, third Monday of each month, except June, July, August and September, Hotel Sherman, Chicago, Ill.

Equipment and Supplies

November Orders Reveal Upswing

11 months' totals show gain over 1936 in car buying; Rail volume at year high

Domestic equipment orders placed during November made requisition for 13 locomotives, 1,625 freight cars and 13 passenger-train cars, compared with a total of but 21 freight cars ordered during October. The month's purchases carry the total domestic equipment figures for the year thus far to 291 locomotives (172 steam and 119 Diesel-electric and electric), 49,451 freight cars and 484 passenger-train cars. Compared

tons of 131-lb. steel rail and fastenings; shop tools to cost about \$200,000; 4,000 sets of improved (AB) air brakes for application to freight cars; the construction of storage tracks and an interlocking plant at Devon, W. Va.; the extension of the westward passing siding at Dorney, Ohio, a distance of 4,190 ft., and the extension of four passenger station tracks at Roanoke, Va.

Santa Fe to Purchase New Equipment

Directors of Atchison, Topeka & Santa Fe on November 30, authorized the purchase of stainless steel passenger cars and Diesel locomotives to cost \$4,800,000.

LOCOMOTIVES

THE CHESAPEAKE & OHIO is inquiring for 14 passenger-locomotive tenders of 18,000 gal. capacity.

THE WHITE PASS & YUKON ROUTE is

Chattanooga & St. Louis were reported in the *Railway Age* of November 27, as having been placed with the Tennessee Coal, Iron & Railroad Company, a subsidiary of the United States Steel Corporation. An additional 14,000 tons for the Atlantic Coast Line and the Clinchfield have been let to the Tennessee Coal, Iron & Railroad Company.

THE CENTRAL OF GEORGIA has ordered 2,836 tons of rail from the Tennessee Coal, Iron & Railroad Co.

SIGNALING

ATLANTIC COAST LINE.—The Baldwin Locomotive Works has placed an order with the General Railway Signal Company for 12 complete sets of intermittent inductive auto-manual train control engine equipment for Atlantic Coast Line locomotives.

BALTIMORE & OHIO.—The Electro-Motive Corporation has placed an order with the General Railway Signal Company for two complete sets of intermittent inductive auto-manual train control engine equipment for application on locomotives for the Baltimore & Ohio.

THE BALTIMORE & OHIO has placed an order with the General Railway Signal Company for an 8-lever table interlocking machine for installation at Falls Creek, Pa. In addition, the order includes 1 Model 5C switch machine, 2 color-position-light dwarf signals, 6 "BX" rectifiers, 6 Type K transformers, 42 Type K relays, 3 Type L vane relays, and other incidental material.

THE SOUTHERN has placed a contract with the General Railway Signal Company for the furnishing and installation of a-c., absolute permissive block signals between Beverly, Tenn., and Clinton, a distance of 23 miles. This order includes 49 Type D color-light signals, 44 Model 7 switch circuit controllers, 65 steel relay housings, 152 Form B relays, 40 Form A relays, 56 Type K transformers, 46 Type L transformers and other incidental material.

THE DELAWARE & HUDSON has placed an order with the General Railway Signal Company for a 6-unit addition to its centralized traffic control machine at Albany, N. Y., complete with master cabinet, test panel, track diagram, control levers, indication lights and all necessary relays for controlling the switches and signals at "XO" and "WY" at Mechanicville, N. Y. "XO" is located 19 miles north of Albany and is now controlled by a 64-lever electric interlocker having 56 working levers, and "WY" interlocking, 1 mile north of "XO," is now controlled by a 36-lever mechanical interlocker, having 34 working levers.

REGARDING EVERY EMPLOYEE as a potential salesman, the London, Midland & Scottish (Great Britain) has distributed to about 10,000 members of its staff, a booklet setting forth 38 principles of successful salesmanship. The publication is part of the program to increase business through the efforts of non-traffic department employees. To further encourage the work, competitions between operating districts of the road have been organized.

Domestic Equipment Orders Reported in Issues of the Railway Age in November, 1937

LOCOMOTIVES				
DATE	NAME OF COMPANY	No.	TYPE	BUILDER
Nov. 13	Chicago, Burlington & Quincy	5		Company Shops
Nov. 13	Reading	2	Diesel Switching	American Locomotive Co.
		6	Diesel Switching	Electro Motive Corp.
FREIGHT CARS				
Nov. 13	Chicago, Burlington & Quincy	250	Automobile	Company Shops
		600	Box	Company Shops
		100	Hopper	Company Shops
		400	Coal	Company Shops
Nov. 20	Duluth, Missabe & Iron Range	25	Ore	Pullman-Standard
Nov. 27	Northwestern Refrigerator Line Co.,	250	Refrigerator	American Car & Foundry
PASSENGER-TRAIN CARS				
Nov. 13	Chicago, Burlington & Quincy	3	Dining	Edward G. Budd Mfg. Co.
		5	Chair	Edward G. Budd Mfg. Co.
		2	Dinette	Edward G. Budd Mfg. Co.
		1	Dinette-Coach	Edward G. Budd Mfg. Co.
Nov. 20	New York Central	2	Coach	Edward G. Budd Mfg. Co.

with the totals in each category for the corresponding 11 months of 1936,—354 locomotives (305 steam and 49 Diesel-electric, and electric), 40,214 freight cars and 256 passenger-train cars,—this year's figures represent a decrease in locomotive buying, a fair gain in freight equipment orders and an increase of approximately 89 per cent in passenger car purchases.

November's volume in rail orders constituted a high for the year, and included the two largest individual orders placed since December, 1936. During the month, orders for a total of 61,727 tons were recorded, including a requisition for 35,333 tons entered by the Southern Pacific and an order for 20,900 tons placed by the Louisville & Nashville. This total carries the rail figures for the first 11 months of the year to 161,844 tons, compared with 940,294 tons ordered during the corresponding period of 1936.

Norfolk & Western \$3,700,000 Improvement Program

A program of general improvements for the immediate future, involving an expenditure of approximately \$3,700,000, has been announced by the Norfolk & Western. The program includes the purchase of 25,000

inquiring for one locomotive of the 2-8-2 type.

FREIGHT CARS

THE WESTERN PACIFIC is now inquiring for 250 box cars, 100 flat cars and 50 gondola cars of 50 tons' capacity. As reported in the *Railway Age* of November 27, this company has been authorized by the district court to purchase this equipment.

IRON AND STEEL

Southern Roads Place Rail Orders

Orders for more than 50,000 tons of rail and 10,000 tons of accessories, amounting to over \$2,500,000, are being placed by a group of southern railways, Lyman Delano, chairman of the board of the Atlantic Coast Line and the Louisville & Nashville announced recently. The group in addition to the roads of which Mr. Delano is chairman, includes the Nashville, Chattanooga & St. Louis and the Clinchfield. These orders are the largest these roads have placed since 1931. Of the total tonnage, 20,900 tons for the Louisville & Nashville and 4,890 tons for the Nashville,

Supply Trade

New Vice-Presidents Elected, Simmons-Boardman Pub- lishing Corporation

Robert E. Thayer and H. A. Morrison, have been elected vice-presidents of the Simmons-Boardman Publishing Corporation, as was announced in the *Railway Age* of November 27.

Robert E. Thayer was born at Chelsea, Mass., on August 4, 1883, and received his higher education at Massachusetts Institute of Technology, from which he was graduated in 1907 with the degree of Bachelor of Science in Mechanical Engineering. Immediately upon leaving the Institute, he served as special apprentice in the American Locomotive Company, and in 1908 he became an instructor in mechanical engineering at his Alma Mater, M.I.T. During 1910 he served as draftsman in the mechanical department of the Boston & Maine, at Boston, Mass., and in the following year he began his association with the Simmons-Boardman Publishing Corporation, becoming an associate editor on the staff of the *Railway Age*



Robert E. Thayer

Gazette (now *Railway Age*). In January, 1917, he became mechanical department editor of the *Railway Age* and, at the same time, managing editor of the *Railway Mechanical Engineer*. In 1919, he was promoted to European editor of the *Railway Age* and associated Simmons-Boardman publications, with headquarters at London, England. Early in 1922 he returned to the United States to serve as New England advertising manager of all Simmons-Boardman transportation publications. In June, 1929, he became, in addition, business manager of the *Railway Mechanical Engineer* and later, business manager of the *Car Builders'* and *Locomotive Cyclopedia*. He continues to retain these responsibilities in his new capacity as vice-president. Mr. Thayer has been a member of the American Society of Mechanical Engineers since 1919.

H. A. Morrison was born on December 21, 1892, at Indianapolis, Ind., and studied electrical engineering at Purdue University. In 1912 he entered the traffic department of the Pennsylvania at Indianapolis, where he remained until 1915, when

he went with the Chicago, Rock Island & Pacific as a special apprentice in the electrical department at Silvis, Ill. In June,



H. A. Morrison

1918, he was transferred to the office of the general mechanical superintendent at Chicago, where he remained until September 1, 1919, when he resigned to become sales engineer for the United States Light & Heat Corp., Chicago, being advanced to the position of district manager of the railway sales department on May 1, 1924. On May 1, 1925, Mr. Morrison resigned from this position to enter the service of the Simmons-Boardman Publishing Corporation as sales representative at Chicago. On July 1, 1930, he was appointed business manager of *Railway Signaling*, a Simmons-Boardman publication, and on August 2, 1932, he was promoted to western manager in charge of sales in the western territory for all transportation publications of the company, at the same time continuing as business manager of *Railway Signaling*. In the capacity of vice-president, Mr. Morrison will retain the responsibilities of both these positions.

W. C. Irwin has been appointed district representative for the H. E. Osborn Company, Chicago, with headquarters in the Frisco building, St. Louis, Mo.

E. T. Schroeder, 1205 Syndicate Trust building, St. Louis, Mo., has been appointed sales representative, in that territory, for the Hennessy Lubricator Company, 75 West street, New York.

C. E. Eklind, assistant vice-president of the Camel Sales Company, has been promoted to vice-president with headquarters as before at Chicago, effective November 1.

J. J. Nolan has been appointed southwestern representative of the railway appliances division of the American Fork & Hoe Company, with headquarters at St. Louis, Mo., to succeed C. E. Irwin, deceased.

W. E. Wechter, assistant manager of the Oil & Gas Engine division of the Worthington Pump and Machinery Corporation, at Harrison, N. J., has been appointed manager of oil & gas engine sales, Atlantic division, to succeed R. L.

Howes, resigned. Mr. Wechter now has his headquarters at 2 Park avenue, New York City.

The Trane Company, LaCrosse, Wis., has established a transportation department at 852 North Rush street, Chicago. J. Whalen of the Chicago branch and J. Hicks of the LaCrosse air conditioning department have been transferred to the new department.

Frank Fisher has been appointed western manager of The Pilliod Company, succeeding the late Frank H. Clark, with office as heretofore at Chicago. Mr. Fisher has been with The Pilliod Company for the last 21 years. He will have charge of sales and service.

Phil Huber, vice-president and assistant general manager of the Ex-Cell-O Corporation, Detroit, Mich., and one of its organizers in 1919, has been elected president and general manager to succeed N. A. Woodworth, who has resigned because of ill health. H. G. Bixby, assistant secretary and controller, has been appointed secretary-treasurer and a director.

Cary D. Terrell, vice-president of the American Car & Foundry Co., with office at Chicago, has resigned on account of ill health, effective January 1, 1938, after a service of nearly 30 years. Mr. Terrell entered the service of the American Car & Foundry Co. in 1910, at the St. Louis, Mo., plant. In 1917, he went to Washington, D. C., in connection with the company's work for the United States Government during the World War. Leaving Washington in 1919, he was transferred to the Chicago office of the American Car & Foundry Co. as sales agent and in October, 1922, was appointed assistant vice-president in charge of sales in the Chicago district. In January, 1927, he was elected a vice-president.

J. H. Van Moss has been appointed western sales manager of the American Car & Foundry Co., with headquarters at Chicago, and W. P. McBride will assist him as assistant western sales manager. Prior to his association with the American Car & Foundry Co. in 1927, Mr. Van Moss was for many years connected with various railroads. In 1918, he served as eastern sales representative for the Pennsylvania Tank Car Company and the Pennsylvania Tank Line. During the period from 1918 to 1927, he gained promotion to the vice-presidency of both companies. Subsequently he was elected to the presidency of the Pennsylvania Tank Car Company meanwhile retaining the vice-presidency of the Pennsylvania Tank Line. Early in 1927, he entered the service of the Shippers Car Line Corporation, subsidiary of the American Car & Foundry Co., and in October, 1934, became associated with the parent company as sales agent. In December, 1936, he was appointed assistant vice-president of the American Car & Foundry Co. Mr. McBride became associated with the American Car & Foundry Co., Chicago office, in 1923, shortly after his graduation from college.

NET!

There is but one true measure of locomotive effectiveness—the net return after all charges, including maintenance, have been deducted from gross earnings . . . Modern Power, designed for the service in which it is to operate, assures greater net returns from every train it hauls.



LIMA LOCOMOTIVE WORKS, INCORPORATED
LIMA, OHIO



Samuel F. Pryor, Jr., has been appointed assistant to the president of the **American Brake Shoe & Foundry Co.** Mr. Pryor is also vice-president of the Southern Wheel Division of this company, with headquarters at New York. He is a director of many industrial organizations, including the National Bearing Metals Corporation, and is director and chairman of the executive committee of



Greystone Studios, Inc.

Samuel F. Pryor, Jr.

the Vanadium Corporation of America. Mr. Pryor is 39 years old and has been associated with the American Brake Shoe & Foundry Co., Southern Wheel Division, since 1924, serving as molder's helper, molder, and assistant superintendent. He entered the sales department of the company in 1927, and was elected vice-president in 1930. The American Brake Shoe & Foundry Co. consists of The American Brakeblok Division, Southern Wheel Division, Ramapo Ajax Division, American Manganese Steel Division, and its affiliate, The National Bearing Metals Corporation.

OBITUARY

Fred L. Watson, who resigned as treasurer of the American Steel & Wire Company in 1917, and who was later treasurer of the Federal Export Corporation and was associated with the Cosmopolitan Shipping Company and the United States Shipping Board, died in Chicago on November 26 of a heart ailment.

Stanley T. Scofield, assistant to vice-president of the United States Steel Corporation, died of polyneuritis in the Presbyterian hospital, Chicago, on November 30, at the age of 51 years. Mr. Scofield was stricken with a streptococcus infection last July; he later improved but suffered a relapse about two weeks ago. A portrait of Mr. Scofield and a sketch of his career were published in the *Railway Age* of May 8, page 806.

John Gould Jennings, chairman of the board of **The Lamson & Sessions Company**, Cleveland, Ohio, died on November 21 while en route to St. Petersburg, Fla., where he intended to vacation during the winter. Mr. Jennings was also vice-president of the **Johnston & Jennings Company** of Cleveland, manufacturers of forging and foundry equipment. He was born 81 years ago and was a graduate of Yale

University. He began his business career as a bookkeeper for the Peck, Stow & Wilcox Company. Later he became bookkeeper for The Lamson & Sessions Company, and had been president of this company for many years previous to his election as chairman of the board in November, 1929.

James B. Armstrong, secretary and treasurer of the Flannery Bolt Company, Bridgeville, Pa., died on November 6, following an emergency operation for appendicitis. For a number of years, Mr. Armstrong was associated with the Crucible Steel Company of America and the Brown Iron Company before his association with the Flannery Bolt Company.

Financial

ASHLEY, DREW & NORTHERN.—Stock.—The Interstate Commerce Commission, Division 4, has authorized this company to issue \$300,000 of capital stock, consisting of 12,000 shares of the par value of \$25 a share, in exchange for 5,000 shares of capital stock of the par value of \$100 each.

BARRE & CHELSEA.—Abandonment.—The Interstate Commerce Commission, Division 4, has authorized this company to abandon that part of its so-called East Barre branch extending from East Barre, Vt., to a point about 2,100 feet east of the connection of the branch with its main line, 7,171 feet, all in Barre, Vt.

CHICAGO, BURLINGTON & QUINCY.—Abandonment.—The Ft. Worth & Denver City has applied to the Interstate Commerce Commission for authority to abandon operation of a 1.51-mile line between Acme, Texas, and Agatite, which the Acme Tap Railroad Company has applied for authority to abandon.

CHICAGO, INDIANAPOLIS & LOUISVILLE.—Reorganization.—The Interstate Commerce Commission, Division 4, has announced that the date for public hearings in the reorganization proceedings of this company has been changed from December 7, to December 14.

CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC.—Reorganization.—The Interstate Commerce Commission, Division 4, has authorized H. C. Orton, D. C. Wolf, James B. Johnston, Karl A. Meyer, Rucker Penn, and Lynn H. Dinkins to serve as a protective committee for holders of the preferred stock of this company in its reorganization proceedings. The commission has denied the authorization of Warren H. Corning to serve on the same committee.

DENVER & RIO GRANDE WESTERN.—Abandonment.—The Interstate Commerce Commission has authorized the trustees to abandon the so-called Blende branch extending from Southern Junction, Colo., to Blende, 3.4 miles.

GULF, MOBILE & NORTHERN.—Dividend.—Directors of this company have declared

a dividend of \$2.50 on its preferred stock, the first payment since 1931.

ILLINOIS CENTRAL.—Abandonment.—The Interstate Commerce Commission, Division 4, has authorized the Yazoo & Mississippi Valley to abandon a branch line extending from Minter City Junction, Miss., to Sisloff, 3.1 miles.

ILLINOIS CENTRAL.—Extension of the Rantoul's Bonds.—The Rantoul has applied to the Interstate Commerce Commission for authority to extend from June 1, 1927, to April 2, 1952, the maturity date of its first mortgage gold bonds in the amount of \$1,000,000.

Extension of Bonds of the Cherokee & Dakota.—The Cherokee & Dakota has applied to the Interstate Commerce Commission for authority to extend from December 1, 1935, to April 2, 1952, the maturity date of its first mortgage gold bonds in the amount of \$3,100,000.

LOUISIANA & ARKANSAS.—Acquisition.—Interstate Commerce Commission hearings before Examiner Prichard will be held at Washington, D. C., December 1, on the application of this road for authority to acquire the Louisiana, Arkansas & Texas; also, on the joint application of both for authority to merge their properties into the L. & A.

LUFKIN, HEMPHILL & GULF.—Abandonment.—The Interstate Commerce Commission, Division 4, has authorized this company to abandon as to interstate and foreign commerce its entire line extending from a connection with the Gulf, Colorado & Santa Fe at Bronson, Tex., in an easterly direction to Hemphill, 10.5 miles.

MAINE CENTRAL.—Carl Gray a Director.—The vice-chairman of the Union Pacific, Carl R. Gray, who recently retired as U. P. president, has been elected also a director of the Maine Central, subject to I.C.C. approval.

NASHVILLE-FRANKLIN.—R.F.C. Loan.—This company has applied to the Interstate Commerce Commission for approval of a loan from the Reconstruction Finance Corporation totaling \$250,000.

NEW YORK CENTRAL.—Abandonment.—This company has applied to the Interstate Commerce Commission for authority to abandon its line extending from Canandaigua, N. Y., to Caledonia, 33.2 miles.

NEW YORK CENTRAL.—Abandonment.—The Interstate Commerce Commission, Division 4, has authorized this company to abandon a branch line extending from Suspension Bridge, N. Y., to Lewiston, 5.3 miles.

NEW YORK, NEW HAVEN & HARTFORD.—Abandonment.—The Interstate Commerce Commission, Division 4, has authorized the trustees to abandon a branch line extending from York Hill Quarry, Conn., to Westfield, 4.9 miles.

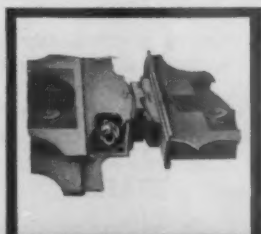
SHREVEPORT, HOUSTON & GULF.—Abandonment.—This company has applied to the Interstate Commerce Commission for authority to abandon its entire line, extend-

YOU CAN FIT HAND WEDGES

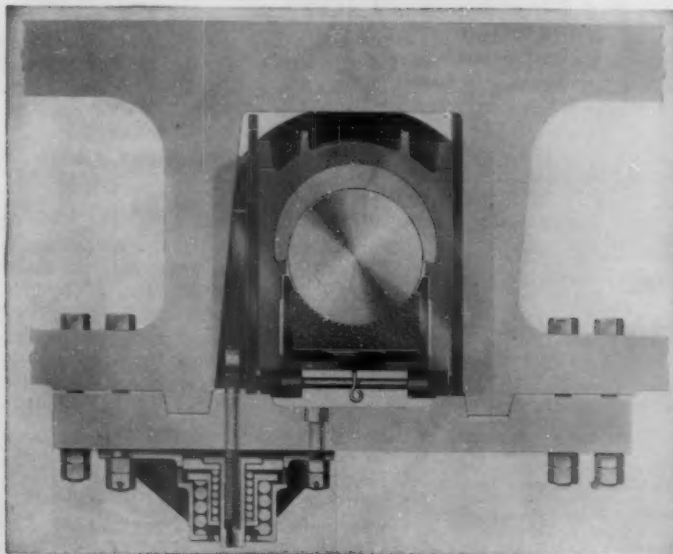
... but they won't stay fitted for ten miles!



Given skill and time enough driving box pedestal fit can be accurately adjusted by hand. But ten miles later driving box expansion will have spoiled the accuracy of that fit. Invariably, hand-adjusted driving box wedges are too tight or too loose. » » » Franklin Automatic Driving Box Compensator and Snubber automatically compensates for driving box expansion. Accurate, automatic adjustment, with a predetermined spring pressure, insures the proper driving box fit from terminal to terminal. There is no air gap to allow pounding—there is no binding to cause hard riding or stuck boxes. » » » In addition, the Snubber element cushions and absorbs unusual shocks and avoids overstressing pins, rods and axles. » » » Between the engine and tender the Type E-2 Radial Buffer does a similar job. It avoids binding and eliminates slack, yet the high frictional resistance dampens engine-tender oscillation. » » » These Franklin twins markedly improve the riding and increase the mileage of the locomotive. They make a worth while reduction in maintenance costs.



Franklin Type E-2 Radial Buffer dampens oscillation between engine and tender and makes for easier riding.



When maintenance is required, a replacement part assumes importance equal to that of the device itself and should be purchased with equal care. Use only genuine Franklin repair parts in Franklin equipment.

FRANKLIN RAILWAY SUPPLY COMPANY, INC.

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ing from Manning, Tex., to Huntington, 11 miles.

SOUTHERN PACIFIC.—Acquisition.—The Interstate Commerce Commission, Division 4, has authorized this company to acquire the properties of the South Pacific Coast.

SOUTHERN PACIFIC.—Acquisition.—Joint Board No. 225 of the Interstate Commerce Commission, in a proposed report to the commission, has recommended that it authorize the Pacific Motor Trucking Company (a Southern Pacific affiliate) to acquire control of the Peoples Freight Line, Inc., by purchase of its capital stock.

SPOKANE, PORTLAND & SEATTLE.—Bonds of the Oregon Electric.—The Interstate Commerce Commission, Division 4, has authorized the Oregon Electric to extend from May 1, 1933, to May 1, 1958, the date of maturity of \$1,951,000 of first mortgage 25 year gold bonds, to bear interest from May 1, 1937, to the maturity date as extended, at the rate of 3 per cent per year. The commission has also authorized the Spokane, Portland & Seattle to assume liability, as guarantor, for the payment of the principal of, and interest on, the bonds as extended.

TENNESSEE, ALABAMA & GEORGIA.—Acquisition.—The application of the Tennessee, Alabama & Georgia Railway Company for authority to acquire control of the Tennessee, Alabama and Georgia Railway has been assigned by the Interstate Commerce Commission for hearing December 6 at Washington, D. C.

WICHITA FALLS & SOUTHERN.—R. F. C. Loan.—The Interstate Commerce Commission, Division 4, has conditionally approved an extension of time of payment to not later than January 1, 1938, and further extension for a period not to exceed six months beginning that date, of a loan of \$300,000 to this company by the Reconstruction Finance Corporation, maturing November 18.

Average Prices of Stocks and Bonds

	Nov. 30	Last week	Last year
Average price of 20 representative railway stocks..	33.00	30.30	55.23
Average price of 20 representative railway bonds..	66.65	65.28	83.46

Dividends Declared

Alabama Great Southern.—Ordinary Stock, 3 per cent; Ordinary Extra, 8 per cent, both payable December 24 to holders of record December 3. Preferred, 3 per cent, payable February 15 to holders of record January 4; Preferred Extra, 8 per cent, payable December 24 to holders of record December 3.

Albany & Susquehanna.—\$4.50, semi-annually, payable January 3 to holders of record December 15.

Atchison, Topeka & Santa Fe.—Preferred, \$2.50, semi-annually, payable February 1 to holders of record December 31.

Beech Creek.—50c, payable January 3 to holders of record December 15.

Boston & Albany.—\$2.25, payable December 21 to holders of record November 30.

Gulf Mobile & Northern.—Preferred, \$2.50, payable December 17 to holders of record December 10.

Norfolk & Western.—Extra, \$6.00, payable December 22 to holders of record December 3.

Philadelphia, Baltimore & Washington.—\$1.50, semi-annually, payable December 31 to holders of record December 15.

Reading Company.—2nd Preferred, 50c, quarterly, payable January 13 to holders of record December 23.

Union Pacific.—\$1.50, payable January 3 to holders of record December 1.

Railway Officers

FINANCIAL, LEGAL AND ACCOUNTING

George Mitchell, auditor of the Manufacturers' Junction, Chicago, has been appointed to the newly-created position of comptroller.

F. G. Hollender, assistant secretary and assistant treasurer of the Northern Pacific at New York, has been appointed secretary and assistant treasurer, with the same headquarters, to succeed **E. A. Gay**, who retired from active service on December 1.

O. G. Browne, assistant general claims attorney of the New York Central System, has been appointed general claims attorney, with headquarters at New York, succeeding **Frank V. Whiting**, who has retired, effective November 30, after 53 years of service. **Herbert L. Hanson** has been appointed chief claims agent.

Edward A. Gay, secretary and assistant treasurer of the Northern Pacific, with headquarters at New York, has retired, effective December 1, after nearly 40 years of service. **F. G. Hollender**, assistant secretary and assistant treasurer at New York, has been elected secretary and assistant treasurer, to succeed Mr. Gay. **Hugh McLeod** has been appointed assistant secretary and assistant treasurer, to succeed Mr. Hollender.

Mr. Gay was born at Stafford Springs, Conn., on November 8, 1867, and entered railroad service in 1888 as stenographer for the Fitchburg railroad at Boston, Mass., serving in this capacity until 1889. From 1891 to 1897 he served as stenographer, U. S. War Department, Washington, D. C., then serving the Northern Pacific as secretary to vice-president, secretary to chairman, assistant secretary, secretary and assistant treasurer.

Daniel Willard, Jr., has been appointed assistant general counsel of the Baltimore & Ohio, as noted in the *Railway Age* of November 27. Mr. Willard, born in Minneapolis, Minn., was graduated from Phillips Exeter Academy in 1912 and entered Yale, receiving his A.B. degree in 1916. In the same year he entered Harvard Law School, but left to serve in the World War. Upon completion of his war service in March, 1919, he returned to Harvard Law School, graduating in 1921 with the degree of LL.B. Mr. Willard was connected with the firm of Kirlin, Woolsey, Campbell, Hickox and Kentry, New York, from 1921 to 1924, being admitted to the New York Bar in 1922. He entered the service of the Baltimore & Ohio on January 6, 1924, as assistant general attorney, and was appointed assistant to general counsel on January 1, 1926, which position he held until his recent appointment. When the Railroad Credit Corporation was organized by the railroads, following the rate case in 1931, Mr. Willard was loaned by the Baltimore &

Ohio to the corporation, and served as its general counsel. Later he also became its vice-president, with headquarters at Washington, D. C. Under the marshalling and distributing plan adopted by the railroads in this case, total contributions were about \$75,000,000, a large part of which was loaned to the roads which were in need of it. Most of these loans have now been repaid, and it is expected that with the gradual termination of the corporation's work, Mr. Willard will be relieved of his duties in Washington, and be able to devote all his time to his new position on the Baltimore & Ohio.

OPERATING

R. H. Carter, assistant general yardmaster on the Illinois Central at Chicago, has been appointed acting trainmaster at Freeport, Ill., to relieve **F. R. Campbell**, who is off duty because of illness.

C. V. Funke has been appointed assistant superintendent dining cars of the Seaboard Air Line, with headquarters at Jacksonville, Fla., succeeding **R. S. Jennings**, deceased.

Ernest L. Ray, auditor of the Detroit & Toledo Shore Line, with headquarters at Toledo, Ohio, has been appointed acting general manager with headquarters at Detroit, to succeed **James P. Main**, whose death on October 20 was reported in the *Railway Age* of November 6.

W. C. Ransom, superintendent of the Manufacturers' Junction, Chicago, has been promoted to general manager, in which capacity he takes over a portion of the duties formerly discharged by **W. H. DeWitt, Jr.**, who was recently advanced from vice-president and general manager to president.

M. M. Sisson, assistant general manager of the St. Louis-San Francisco, with headquarters at Springfield, Mo., has been appointed superintendent of the Eastern division, with the same headquarters, and the position of assistant general manager has been abolished, effective December 1. Mr. Sisson succeeds **L. B. Clary**, who has been transferred to the Southern division, with headquarters at Memphis, Tenn., to replace **S. J. Frazier**, who has been appointed assistant superintendent of transportation, with headquarters at Springfield.

TRAFFIC

J. T. Cobb has been appointed division passenger agent of the Southern, with headquarters at Columbia, S. C.

J. F. Cummins, general agent of the Manufacturers' Junction, Chicago, has been promoted to the newly-created position of traffic manager.

J. R. Moriarity, assistant general passenger agent of the Atchison, Topeka & Santa Fe, with headquarters at Chicago, has been appointed to the newly-created position of assistant passenger traffic manager, with the same headquarters, effective December 1.

J. A. Christian, commercial agent on

NO. 43 OF A SERIES OF FAMOUS ARCHES OF THE WORLD



CALVERT STREET BRIDGE

WASHINGTON, D. C.

The Calvert Street Bridge, carrying Calvert Street over the gorge of Rock Creek, which is part of Rock Creek Park, replaced the steel viaduct constructed about 1892.

The roadway of the new Bridge is 135 ft. above Rock Creek and is 750 ft. long, consisting of three 150 ft. reinforced concrete arches and the approaches at each end.

The whole structure is faced with Indiana Limestone. It was constructed in 1935 and required 30,500 cu. yd. of concrete, 1,750 tons of reinforcing steel and 138,000 ft. of Indiana Limestone.

This Bridge was constructed for the Commissioners of the District of Columbia and was paid for out of funds received from automobile and gas taxes.

Modjeski, Masters & Case were the Engineers and The John W. Cowper Company, Incorporated, were the Contractors.

An interesting feature of this Bridge was that the old Viaduct, weighing about 1,600 tons, was moved bodily 80 ft. south, to permit the new Bridge to be constructed on the street line, and was used during the construction for a detour or by-pass around the new Bridge.

* * *

Another noteworthy engineering development is the Security Sectional for the locomotive firebox. The Security Sectional Arch, made up of small easily handled brick, made the firebox brick arch practical for locomotive service. Its design is standard for locomotive service and it is a major factor in fuel economy.

THERE'S MORE TO SECURITY ARCHES THAN JUST BRICK

**HARBISON-WALKER
REFRACTORIES CO.**

Refractory Specialists



**AMERICAN ARCH CO.
INCORPORATED**

*Locomotive Combustion
Specialists* " " "

the Kansas City Southern at Oklahoma City, Okla., has been promoted to general agent with headquarters at Tulsa, Okla., to succeed **J. F. Griffiths**, who has been transferred to Kansas City, Mo., as reported in the *Railway Age* of November 30.

Glenn Eddie, division passenger agent on the Atchison, Topeka & Santa Fe, with headquarters at Oklahoma City, Okla.,



Glenn Eddie

who has been promoted to general passenger agent at Topeka, Kan., as reported in the *Railway Age* of November 27, has been connected with this company for about 34 years. He entered the service of the Santa Fe in 1903 as a clerk in the operating department at Hutchinson, Kan. Seven years later he was transferred to the passenger department and within another year was promoted to passenger agent at Topeka. In 1920, Mr. Eddie was assigned to Oklahoma City as division passenger agent, which position he held until his recent appointment as general passenger agent, effective December 1.

Francis N. Westerman has been appointed assistant passenger traffic manager of the Southern system at Washington, D. C., as noted in the *Railway Age* of November 20. He was born at Parkersburg, W. Va., on September 15, 1874, and



Francis N. Westerman

attended the public schools of Columbus, Ohio. At the age of 16 years he obtained his first railway experience in the operating department of the Columbus, Hocking Val-

ley & Toledo (now part of the Chesapeake & Ohio). Later he served with that railroad in the accounting department and as chief rate clerk in the passenger department. Mr. Westerman entered the service of the Southern in June, 1899, in the passenger department at Washington, D. C. Later he was advanced successively through the positions of division clerk, rate clerk, chief rate clerk, and chief clerk in the passenger department. In November, 1913, he was promoted to assistant general passenger agent at St. Louis, Mo., where he remained until January, 1917, when he was transferred to Cincinnati. He was transferred to Washington in December, 1922, and returned to Cincinnati in July, 1926. Mr. Westerman was promoted to general passenger agent at Cincinnati on April 15, 1931, and during the next year he was transferred in the same capacity to Washington, the position he held until his recent appointment.

Edgar E. Barry has been appointed assistant passenger traffic manager of the Southern system at Washington, D. C., as noted in the *Railway Age* of November 20. Mr. Barry was born on November 29, 1889, at Clarkston, Ga., and was graduated from high school and business college in Atlanta, Ga. On June 1, 1905, he entered railroad service with the Southern as



Edgar E. Barry

stenographer in the office of the assistant general passenger agent at Atlanta and served in this capacity until December 31, 1906, when he became a stenographer-clerk on the Louisville & Nashville at Atlanta. On January 1, 1910, he became chief clerk to the district passenger agent at Atlanta, on the St. Louis-San Francisco, and on April 16, 1911, he became secretary to the assistant general passenger agent of the Southern, at Atlanta. Mr. Barry held the latter position until June 1, 1912, when he became rate and voucher clerk. He then served the Southern as traveling passenger agent at Atlanta and Houston, Texas, successively, and on February 1, 1918, became chief clerk at Atlanta. On March 1, 1920, Mr. Barry was appointed district passenger agent at Houston, being transferred in the same capacity to Atlanta on August 16, 1925. He was appointed assistant general passenger agent on April 16, 1931, the position he held until December 1, when he was appointed assistant passenger traffic manager at Washington, D. C.

R. H. Hamilton has been appointed general passenger agent of the Southern system at Washington, D. C., as noted in the *Railway Age* of November 20. He was born on September 11, 1893, at Rome, Ga., and was educated in the city and business schools. Mr. Hamilton entered railroad service on April 23, 1914, with the Southern system as assistant city passenger and ticket agent at Rome, and was ap-



R. H. Hamilton

pointed city passenger and ticket agent there on October 6, 1914. On April 1, 1917, he became city ticket agent at Norfolk, Va., and on May 1, 1918, ticket seller, U. S. Railroad Administration, Consolidated ticket office, Norfolk. On August 1, 1918, he became agent, U. S. Railroad Administration, with the same headquarters. Mr. Hamilton was appointed traveling passenger agent of the Southern system at Norfolk on March 1, 1920; traveling passenger agent at Atlanta on December 1, 1920; district passenger agent at Atlanta on May 1, 1924; chief transportation and schedule clerk at Washington, D. C., on August 15, 1925; and division passenger agent there on January 1, 1931. He became assistant general passenger agent at Washington, D. C., on April 16, 1931, the position he held until his appointment as general passenger agent at Washington, effective December 1.

ENGINEERING AND SIGNALING

G. M. Taylor, assistant district engineer on the Southern Pacific, with headquarters at Dunsuir, Cal., has been promoted to district engineer, with the same headquarters, to succeed **J. A. Given**, who has been assigned to other duties.

MECHANICAL

James Paul, whose retirement as general superintendent motive power of the Atlantic Coast Line was noted in the *Railway Age* of November 6, was born in Lanarkshire, Scotland. He entered railroad service in 1885 with a predecessor of the Atlantic Coast Line as car inspector's helper. Later he was transferred to the machine shop as an apprentice, later becoming air brake repairman. Mr. Paul next served as roundhouse foreman and then as general foreman. In 1906 he became master

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mechanic and in November, 1925, was promoted to the position of assistant superintendent of motive power. He was appointed superintendent of motive power in



James Paul

March, 1927, which position he held until August, 1929, when he became general superintendent of motive power, with headquarters at Wilmington, N. C. For the past year, Mr. Paul had been absent from his office, due to ill health.

PURCHASES AND STORES

Samuel A. Hayden, general storekeeper of the Missouri-Kansas-Texas, with headquarters at Parsons, Kan., who has been promoted to assistant purchasing agent and general storekeeper, as reported in the *Railway Age* of November 13, has been in the service of the Katy for more than 26 years. He was born on April 18, 1896, at St. Paul, Kan., and obtained a public school education at Pawnee, Ill., and Parsons. He entered railway service with the Katy on September 1, 1911, as a



MacEwan Studio

Samuel A. Hayden

machinist apprentice in the shops at Parsons. Two years later he was transferred to the stores department, where he advanced through various clerical positions to that of chief clerk to the general storekeeper in July, 1923. Mr. Hayden was further promoted to general storekeeper on September 1, 1933, which position he was holding at the time of his recent ap-

pointment, effective November 1. Mr. Hayden now has offices in St. Louis, Mo.

OBITUARY

J. H. Tallichet, attorney for the Southern Pacific at Houston, Tex., died on November 24.

Henry E. Yeomans, division engineer for the Great Northern at Grand Forks, N. D., died there on October 30, at the age of 52.

Charles C. McChord, member of the Interstate Commerce Commission from 1910 to 1926, died in New York on November 24, at the age of 78.

J. A. Barker, superintendent terminals of the Chesapeake & Ohio, with headquarters at Chicago, Ill., died on November 27.

A. W. White, division engineer of the Illinois division of the Chicago & Eastern Illinois, with headquarters at Salem, Ill., died on November 15 in a hospital at St. Louis, Mo., following an illness of several months' duration.

William Ten Eyck LaMoure, former freight traffic manager of the Boston & Maine, died on November 24, at his home in Somerville, Mass., at the age of 76. Mr. LaMoure served as freight traffic manager from December 1, 1917, to January, 1926, then holding the position of freight assistant to the vice-president for about a year.

W. W. W. Arthur, formerly assistant to the freight traffic manager for the Southern Pacific at Chicago, died at Pittsburgh, Pa., on November 25 following a long illness. Mr. Arthur, who was nearly 77 years of age, retired on January 31, 1932, after more than 41 years of continuous service with the Southern Pacific Lines.

John C. Roth, general superintendent of transportation of the Chicago, Burlington & Quincy System, which includes the Colorado & Southern and Ft. Worth & Denver City, died on November 29 in the Augustana hospital at Chicago, after an illness of four months' duration. Mr. Roth was a native of St. Paul, Minn., and was 63 years old. He entered railway service with the Canadian Pacific in 1892 but left this company shortly thereafter to go with the Northern Pacific, with which company he served for 25 years in various capacities in the operating department, including that of assistant general superintendent. In 1918 he was appointed district manager, Car Service section, United States Railroad Administration at Portland, Ore. Later during government control of the railroads he served as car service assistant in the Northwestern region and terminal manager of the Puget Sound Terminal district. On May 20, 1920, he was appointed assistant director of the Bureau of Service of the Interstate Commerce Commission and on June 1, 1922, he became director of the Bureau of Service. In the following year he returned to railroad service as general sup-

erintendent of transportation of the Great Northern at St. Paul. In January, 1927, he entered the service of the Burlington as general inspector of transportation at Chicago, being promoted to superintendent of transportation in May, 1928, and to general superintendent of transportation in 1931. His jurisdiction was extended over the C. & S. and the F. W. & D. C. in 1936.

John F. Pewters, western traffic manager of the Great Northern, with headquarters at Seattle, Wash., who died on November 17 at Seattle after a brief illness, as reported in the *Railway Age* of November 27, was born in St. Paul, Minn.,



John F. Pewters

and was 54 years old. He first entered the service of the Great Northern during summer vacations while attending high school. He served as a waterboy, messenger, car sealer and clerk until 1915, when he was made agent at Minneapolis Junction, being appointed assistant agent at Great Falls, Mont., in the following year. In 1920 Mr. Pewters was promoted to general agent at Great Falls, being transferred to Spokane, Wash., two years later. In 1925 he was advanced to assistant general freight and passenger agent for Montana, with headquarters at Helena, and on June 15, 1930, he was made assistant general freight agent at St. Paul. On June 15, 1932, Mr. Pewter was further promoted to assistant freight traffic manager, with the same headquarters, which position he held until December 1, 1935, when he was promoted to western traffic manager, with headquarters at Seattle.

AN EXHIBITION TRAIN OF GLASS has just been completed by the British railways in co-operation with a large glass manufacturer, the purpose of which is to show architects, the building trades, and the public the uses of glass. Glass fitters have converted two large passenger cars into a miniature "crystal palace-on-wheels," in which some 200 varieties of glass are on display. The exterior of the train, with the exception of the roof, is almost entirely covered with glass. Strips of vitroflex, a flexible mirrored glass, run the full length of the train, which carries the glass letters "Glass Age Exhibition Train." 120,000 miniature mirrors have been used.

Table of Freight Operating Statistics appears on next left-hand page



A DIFFERENT BREED of CATS...

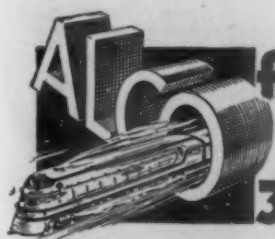
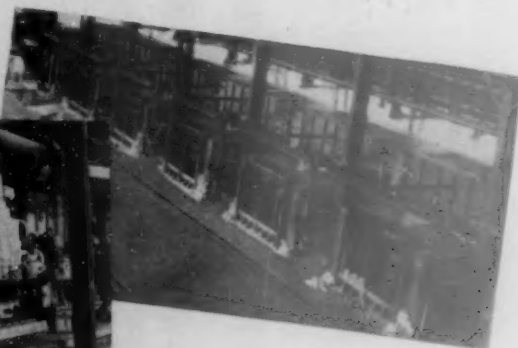
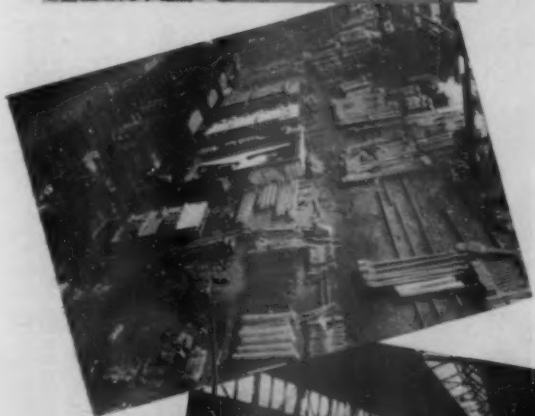


YOU cannot throw the manufacture of light-weight alloy steel forgings into the ordinary forge shop. They've got to be handled entirely differently. They're a different "breed of cats". A new manufacturing set-up is necessary—the purchase of a wide variety of particular equipment becomes imperative—the training of a special personnel essential.

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Freight Operating Statistics of Large Steam Railways—Selected Items for the Month of September.

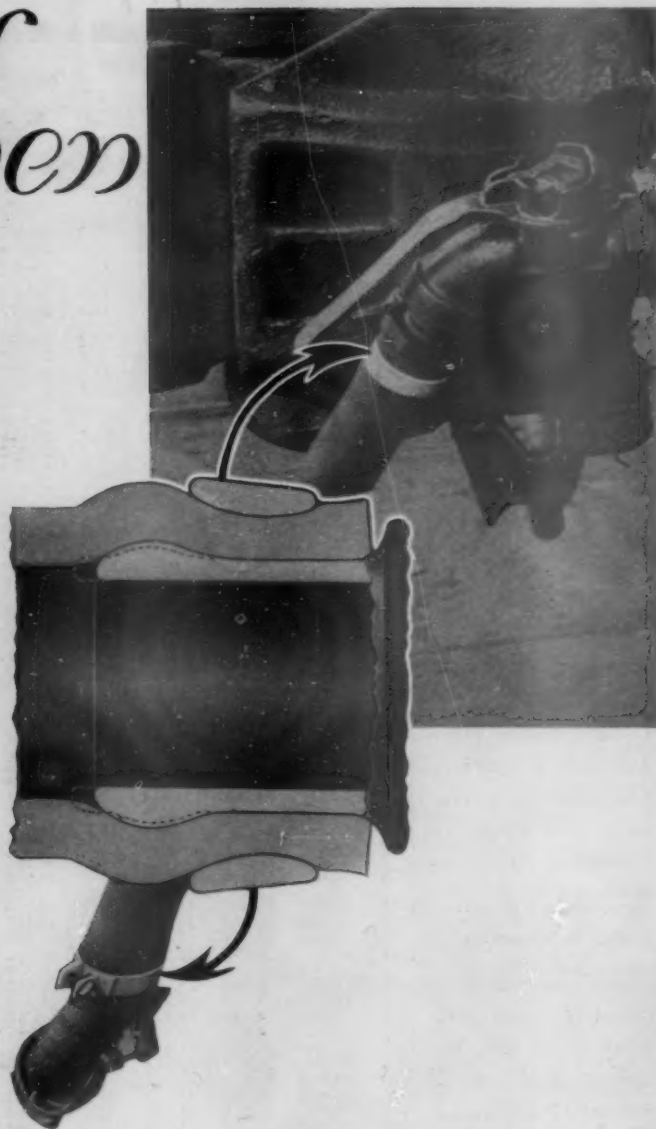
Region, road, and year	Miles of road operated	Train-miles	Locomotive-miles		Car-miles		Ton-miles (thousands)		Number of road locomotives on line			
			Principal and helper	Light	Loaded (thousands)	Per cent loaded	Gross, excluding locomotives and tenders	Net, revenue and non-revenue	Serviceable		Per cent un-serviceable	
									Not stored	Stored		
New England Region:												
Boston & Albany.....1937	374	129,449	133,269	8,349	2,874	70.1	155,668	56,477	61	10	20	22.0
.....1936	373	127,560	131,221	8,745	3,018	69.5	159,282	56,894	53	12	27	29.3
Boston & Maine.....1937	1,941	262,563	290,731	23,306	9,139	72.2	487,306	184,407	130	5	120	47.1
.....1936	1,963	259,889	291,357	27,003	9,473	72.4	504,949	195,830	124	..	167	57.4
N. Y., New Hav. & Hartf..1937	2,011	319,857	390,859	25,633	11,476	72.7	585,013	229,257	182	15	64	26.3
.....1936	2,016	314,293	386,472	19,234	11,109	70.9	576,433	225,305	169	19	100	34.2
Great Lakes Region:												
Delaware & Hudson.....1937	830	220,532	288,258	30,697	7,676	69.1	460,346	225,389	126	106	29	11.1
.....1936	831	211,629	283,675	30,685	7,693	70.4	462,236	228,411	104	121	38	14.4
Del., Lack. & Western.....1937	983	339,163	378,266	48,872	11,512	71.5	648,148	263,641	134	16	68	31.2
.....1936	983	338,526	375,845	48,376	11,509	71.9	647,555	265,153	140	1	101	41.7
Erie (incl. Chi. & Erie)....1937	2,277	690,153	730,455	43,662	30,244	68.2	1,839,445	693,417	242	35	186	40.2
.....1936	2,298	696,672	736,783	41,567	30,104	67.6	1,859,883	706,418	231	29	214	45.1
Grand Trunk Western.....1937	1,027	238,481	240,662	3,048	6,520	65.0	389,141	143,097	84	1	47	35.6
.....1936	1,027	228,595	229,795	1,869	5,715	66.7	336,570	127,822	81	2	55	39.9
Lehigh Valley.....1937	1,301	314,929	344,384	47,107	12,235	68.6	757,034	336,281	129	8	136	49.8
.....1936	1,312	333,885	353,417	41,182	12,154	68.6	726,839	313,860	119	18	147	51.8
New York Central.....1937	10,681	2,669,930	2,820,715	161,577	91,135	61.9	6,069,038	2,589,334	945	175	347	23.7
.....1936	10,793	2,581,658	2,726,883	161,018	87,650	62.3	5,631,457	2,420,599	864	123	525	34.7
N. Y., Chicago & St. Louis.1937	1,672	471,077	477,488	6,496	16,978	66.1	1,009,748	392,888	156	20	20	10.2
.....1936	1,672	470,909	475,844	6,693	16,501	65.5	980,995	387,291	162	3	27	14.1
Pere Marquette.....1937	2,081	347,400	354,374	5,946	9,197	63.5	585,808	234,764	117	8	26	17.2
.....1936	2,081	328,992	341,613	5,965	8,306	63.9	525,481	215,078	114	6	32	21.1
Pittsburgh & Lake Erie....1937	234	89,753	92,596	.....	3,517	62.6	299,418	172,989	41	15	22	28.2
.....1936	234	89,153	91,446	.....	3,538	61.0	302,945	173,168	33	11	24	35.3
Wabash.....1937	2,421	557,822	568,435	12,622	17,600	67.7	1,021,692	378,595	148	26	115	39.8
.....1936	2,435	555,831	567,521	11,496	17,036	68.0	982,316	358,771	134	34	140	45.5
Central Eastern Region:												
Baltimore & Ohio.....1937	6,330	1,526,162	1,887,825	193,884	48,593	63.6	3,354,921	1,566,895	676	99	502	39.3
.....1936	6,366	1,500,612	1,849,731	193,224	47,817	66.3	3,187,440	1,504,052	665	18	617	47.5
Central of New Jersey.....1937	678	149,346	168,933	33,267	4,933	62.6	330,940	157,225	73	8	70	46.4
.....1936	681	148,204	167,108	30,317	4,814	62.3	321,980	151,255	57	15	75	51.2
Chicago & Eastern Illinois.1937	931	170,873	171,284	2,819	4,715	69.6	290,662	131,790	55	..	47	46.1
.....1936	931	159,210	159,430	2,479	4,260	71.3	256,515	116,300	52	..	56	52.1
Elgin, Joliet & Eastern....1937	435	116,662	118,305	1,831	2,957	59.4	233,800	117,591	55	..	26	32.9
.....1936	434	97,224	98,298	1,699	2,536	61.9	191,321	96,885	58	..	28	32.6
Long Island.....1937	393	26,900	27,529	14,668	246	50.9	18,783	7,168	29	12	8	16.3
.....1936	393	32,624	33,029	15,123	272	50.0	21,121	7,756	34	1	15	30.0
Pennsylvania System.....1937	10,015	2,991,129	3,452,385	392,073	112,338	64.2	7,626,165	3,558,101	1,399	321	558	24.5
.....1936	10,034	3,023,788	3,416,270	404,434	108,122	64.4	7,247,565	3,355,828	1,416	167	763	32.5
Reading.....1937	1,445	399,504	440,463	51,253	11,430	63.6	808,567	391,445	197	28	112	33.2
.....1936	1,449	401,503	433,852	47,743	11,539	64.9	806,783	394,320	194	55	94	27.4
Pocahontas Region:												
Chesapeake & Ohio.....1937	3,050	898,251	945,147	40,746	41,675	57.1	3,523,286	1,947,690	409	45	96	17.5
.....1936	3,050	886,110	945,146	42,471	41,460	56.5	3,500,718	1,921,172	423	34	79	14.7
Norfolk & Western.....1937	2,179	702,342	736,370	41,105	30,506	58.5	2,594,940	1,403,066	315	27	24	6.6
.....1936	2,160	695,638	742,668	37,540	30,051	60.3	2,570,588	1,436,052	266	50	51	13.9
Southern Region:												
Atlantic Coast Line.....1937	5,074	501,467	506,633	7,195	11,693	67.4	622,064	237,044	219	63	90	24.2
.....1936	5,081	509,170	510,215	7,094	10,809	67.9	565,585	211,961	201	61	125	32.3
Central of Georgia.....1937	1,886	262,666	264,647	3,511	5,713	72.1	310,431	124,578	104	..	20	16.1
.....1936	1,886	243,914	245,494	3,182	5,577	74.7	291,877	114,858	92	..	32	25.8
Illinois Central (incl. Y. & M. V.).....1937	6,546	1,415,636	1,424,695	25,885	39,323	65.0	2,487,268	1,050,887	627	60	173	20.1
.....1936	6,562	1,554,531	1,566,103	29,072	38,583	64.3	2,448,072	1,019,974	662	9	212	24.0
Louisville & Nashville....1937	4,931	1,147,946	1,251,408	28,764	27,839	60.6	1,980,719	976,322	367	59	125	22.7
.....1936	4,979	1,081,107	1,182,230	30,067	26,626	60.7	1,871,733	901,204	362	11	200	34.9
Seaboard Air Line.....1937	4,295	439,966	453,108	4,599	11,400	69.5	639,269	256,332	197	45	71	22.7
.....1936	4,295	421,815	438,436	4,062	11,047	70.3	606,449	240,128	203	15	117	34.9
Southern.....1937	6,596	1,252,023	1,271,701	19,160	29,038	70.1	1,600,827	658,438	523	3	231	30.5
.....1936	6,596	1,246,826	1,266,917	21,186	29,715	71.4	1,600,731	653,945	500	36	264	33.0
Northwestern Region:												
Chicago & North Western..1937	8,397	1,026,229	1,073,126	28,240	28,242	62.1	1,801,754	677,904	429	95	175	25.0
.....1936	8,355	994,015	1,045,878	30,691	28,179	62.7	1,768,754	661,225	428	74	213	29.8
Chicago Great Western.....1937	1,450	290,620	294,061	11,392	8,661	62.2	535,791	198,208	70	..	23	24.7
.....1936	1,458	281,106	281,863	16,289	8,243	61.4	508,860	182,422	66	1	19	22.1
Chi., Milw., St. P. & Pac..1937	11,109	1,420,664	1,503,827	65,394	38,859	61.3	2,504,685	1,009,279	544	22	104	15.5
.....1936	11,120	1,447,143	1,554,766	66,507	39,470	61.6	2,508,797	1,006,397	502	53	122	18.0
Chi., St. P., Minneap. & Om.1937	1,636	250,717	264,686	12,392	5,587	64.1	354,693	148,049	116	4	25	17.2
.....1936	1,637	234,824	251,806	11,095	5,110	63.9	325,178	133,065	87	39	22	14.9
Great Northern.....1937	7,997	1,040,327	1,045,185	36,258	37,491	58.0	2,703,467	1,234,548	400	20	133	24.1
.....1936	8,059	985,904	990,599	37,188	35,234	56.9	2,495,923	1,071,589	383	39	161	27.1
Minneap., St. P. & S. St. M.1937	4,277	428,909	437,420	5,480	10,368	63.7	642,046	277,553	123	..	28	18.5
.....1936	4,273	376,987	385,418	4,303	8,844	68.0	532,250	224,929	122	..	33	21.3
Northern Pacific.....1937	6,429	835,371	882,797	46,761	26,401	61.3	1,694,910	675,597	382	11	69	14.9
.....1936	6,429	825,435	913,362	55,747	25,840	63.9	1,593,288	633,238	358	4	81	18.3
Central Western Region:												
Alton.....1937	912	215,233	233,245	2,423	5,030	65.6	310,883	123,104	71	..	25	26.0
.....1936	912	204,501	216,956	1,515	4,906	67.7	298,091	120,980	75	3	20	20.4
Atch., Top. & S. Fe (incl. G.C. & S.F. & P. & S.F.)..1937	13,541	1,931,746	2,085,120	92,329	56,692	65.4	3,525,171	1,241,054	645	39	256	27.2
.....1936	13,228	1,862,571	2,024,869	98,863	53,618	63.0	3,399,955	1,148,349	563	83	328	33.7
Chicago, Burl. & Quincy.....1937	8,934	1,341,994	1,396,586	50,320	39,539	62.9	2,384,133	989,816	456	11	81	14.8
.....1936	8,935	1,415,872	1,486,735	60,343	37,815	61.6	2,294,128	935,941	446	..	93	17.3
Chi., Rock I. & Pac. (incl. Chi., Rock I. & Gulf).....1937	8,113	1,175,003	1,199,679	11,121	27,887	63.4	1,722,444	678,439	419	42	162	26

1937, Compared with September, 1936, for Roads with Annual Operating Revenues Above \$25,000,000

Region, road, and year	Number of freight cars on line			Per cent un-service-able	Gross ton-miles per train-hour, excluding locomotives and tenders		Net ton-miles per train-mile, excluding locomotives and tenders	Net ton-miles per loaded car-mile	Net ton-miles per car-day	Car-miles per car-day	Net ton-miles per mile of road per day	Pounds of coal per 1,000 gross ton-miles, including locomotives and tenders	Locomotive-miles per locomotive-day
	Home	Foreign	Total		Gross ton-miles per train-hour, excluding locomotives and tenders	Net ton-miles per train-mile, excluding locomotives and tenders							
New England Region:													
Boston & Albany.....1937	2,028	3,834	5,862	27.0	20,045	1,216	441	19.7	308	22.4	5,034	159	55.5
.....1936	2,311	4,455	6,766	24.4	20,614	1,259	450	18.9	292	22.3	5,084	156	54.4
Boston & Maine.....1937	7,060	8,094	15,154	12.5	25,344	1,866	706	20.2	415	28.5	3,167	98	44.8
.....1936	7,585	8,411	15,996	15.3	25,997	1,950	756	20.7	417	27.8	3,325	97	40.6
N. Y., New Hav. & Hartf..1937	8,349	12,776	21,125	11.8	26,026	1,861	729	20.0	378	26.0	3,800	99	59.0
.....1936	10,696	11,865	22,561	14.3	25,679	1,868	730	20.3	337	23.4	3,725	100	52.8
Great Lakes Region:													
Delaware & Hudson.....1937	7,625	3,851	11,476	4.2	29,663	2,095	1,026	29.4	655	32.2	9,052	102	44.5
.....1936	7,783	3,654	11,437	4.4	30,547	2,200	1,087	29.7	656	31.3	9,165	101	42.8
Del., Lack. & Western....1937	12,515	6,556	19,071	13.4	32,077	1,938	788	22.9	462	28.3	8,940	130	71.2
.....1936	12,753	6,724	19,477	17.5	31,785	1,938	794	23.0	455	27.4	8,991	125	64.3
Erie (incl. Chi. & Erie)...1937	15,602	16,625	32,227	5.1	44,257	2,692	1,015	22.9	729	46.6	10,151	91	61.2
.....1936	16,686	19,732	36,418	2.9	44,336	2,692	1,023	23.5	641	40.4	10,247	92	60.2
Grand Trunk Western....1937	4,838	8,549	13,387	14.3	30,665	1,639	603	21.9	382	26.8	4,644	93	67.8
.....1936	5,406	7,051	12,457	15.7	28,772	1,483	563	22.4	345	23.1	4,149	95	62.1
Lehigh Valley.....1937	9,781	11,530	21,311	7.1	41,534	2,439	1,083	27.5	546	29.0	8,616	108	50.7
.....1936	10,651	9,485	20,136	5.7	37,641	2,213	955	25.8	506	28.5	7,974	114	49.2
New York Central.....1937	90,804	73,378	164,182	15.4	37,141	2,297	980	28.4	529	30.1	8,081	95	76.6
.....1936	98,905	68,390	167,295	20.6	35,749	2,204	948	27.6	481	28.0	7,476	98	71.9
N. Y., Chicago & St. Louis.1937	6,313	7,904	14,217	3.1	37,940	2,149	836	23.1	589	31.9	7,833	85	89.5
.....1936	6,142	7,969	14,111	3.0	37,533	2,086	823	23.5	920	59.8	7,721	86	90.7
Pere Marquette.....1937	7,923	7,598	15,521	4.0	26,693	1,688	677	25.5	506	31.2	3,760	88	90.7
.....1936	8,190	7,092	15,282	4.8	25,557	1,600	655	25.9	477	28.8	3,445	91	86.0
Pittsburgh & Lake Erie....1937	8,427	10,224	18,651	32.5	47,034	3,353	1,937	49.2	309	10.0	24,642	82	43.3
.....1936	13,004	12,834	25,838	40.4	48,588	3,407	1,947	48.9	223	7.5	24,668	85	48.4
Wabash.....1937	12,751	10,247	22,998	6.2	37,345	1,847	684	21.5	556	38.2	5,213	106	71.0
.....1936	12,187	10,018	22,205	6.1	35,563	1,785	652	21.1	543	37.9	4,911	102	65.7
Central Eastern Region:													
Baltimore & Ohio.....1937	55,677	31,778	87,455	12.5	28,225	2,235	1,044	32.2	592	28.9	8,251	130	58.5
.....1936	63,571	29,391	92,962	19.8	27,329	2,157	1,018	31.5	537	25.7	7,875	133	56.1
Central of New Jersey....1937	9,241	10,874	20,115	27.0	27,202	2,335	1,109	31.9	263	13.2	7,730	135	58.1
.....1936	10,753	11,197	21,950	30.6	26,572	2,276	1,069	31.4	231	11.8	7,404	142	61.6
Chicago & Eastern Illinois.1937	2,219	3,822	6,041	3.5	29,563	1,706	774	28.0	730	37.5	4,719	108	60.6
.....1936	2,672	3,403	6,075	7.7	28,376	1,617	733	27.3	622	31.9	4,164	114	53.2
Elgin, Joliet & Eastern....1937	8,472	4,910	13,382	5.4	18,775	2,066	1,039	39.8	275	11.7	9,011	106	69.2
.....1936	7,768	5,416	13,184	4.9	17,554	2,017	1,022	38.2	246	10.4	7,440	106	53.4
Long Island.....1937	359	3,291	3,650	2.7	5,651	720	275	29.1	68	4.6	608	316	40.6
.....1936	574	3,209	3,783	2.3	5,232	668	245	28.5	68	4.8	658	340	45.8
Pennsylvania System.....1937	181,582	69,947	251,529	15.9	36,024	2,591	1,209	31.7	471	23.2	11,843	108	63.3
.....1936	188,226	67,050	255,276	18.1	33,908	2,443	1,131	31.0	435	21.8	11,148	112	61.1
Reading.....1937	21,277	13,184	34,461	10.6	25,653	2,029	982	34.2	371	17.0	9,030	126	53.3
.....1936	22,683	12,986	35,669	9.7	24,616	2,015	985	34.2	373	16.8	9,071	134	50.9
Pocahontas Region:													
Chesapeake & Ohio.....1937	40,448	15,337	55,785	1.3	55,936	3,969	2,194	46.7	1,166	43.7	21,286	68	65.6
.....1936	38,382	15,745	54,127	1.1	54,162	4,003	2,197	46.3	1,206	46.1	20,996	69	67.2
Norfolk & Western.....1937	30,136	5,701	35,837	2.1	54,928	3,740	2,022	46.0	1,246	46.3	21,463	87	77.9
.....1936	28,251	6,992	35,243	1.7	53,772	3,726	2,081	47.8	1,374	47.7	22,161	90	77.2
Southern Region:													
Atlantic Coast Line.....1937	15,400	8,553	23,953	21.3	20,173	1,241	473	20.3	335	24.5	1,557	108	49.6
.....1936	17,263	8,593	25,856	28.1	18,484	1,112	417	19.6	276	20.7	1,391	110	48.2
Central of Georgia.....1937	3,435	4,611	8,046	1.5	21,708	1,187	476	21.8	511	32.5	2,202	119	79.6
.....1936	2,581	4,416	6,997	3.2	21,455	1,199	472	20.6	547	35.6	2,030	113	73.4
Illinois Central (incl. Y. & M. V.).....1937	27,790	24,107	51,897	12.9	27,259	1,767	747	26.7	692	39.9	5,351	119	60.8
.....1936	32,850	24,932	57,782	23.8	24,976	1,586	661	26.4	594	34.9	5,181	122	64.9
Louisville & Nashville....1937	29,793	10,410	40,203	13.6	26,354	1,729	852	35.1	780	36.7	6,600	116	81.9
.....1936	32,480	10,920	43,400	23.5	25,773	1,734	835	33.8	697	34.0	6,033	116	75.4
Seaboard Air Line.....1937	9,471	5,915	15,386	2.3	23,182	1,472	590	22.5	560	35.8	1,989	116	54.7
.....1936	8,622	7,296	15,918	2.5	23,060	1,459	578	21.7	528	34.5	1,863	114	49.2
Southern.....1937	20,068	19,085	39,153	11.9	21,654	1,285	528	22.7	560	35.3	3,327	138	59.5
.....1936	21,986	20,468	42,454	16.6	21,120	1,295	529	22.0	521	33.2	3,305	140	56.9
Northwestern Region:													
Chicago & North Western..1937	36,389	22,639	59,028	8.2	27,234	1,806	680	24.0	386	25.9	2,691	109	57.8
.....1936	34,986	24,693	59,679	7.8	26,777	1,784	667	23.5	367	24.9	2,638	110	55.3
Chicago Great Western....1937	2,116	5,096	7,212	2.5	32,174	1,845	683	22.9	935	65.6	4,557	122	117.2
.....1936	2,037	4,562	6,599	2.9	31,341	1,811	649	22.1	940	69.2	4,171	122	122.5
Chi., Milw., St. P. & Pac..1937	41,955	22,824	64,779	2.9	28,033	1,772	714	26.0	522	32.8	3,028	114	85.8
.....1936	41,665	23,787	65,452	2.7	27,364	1,743	699	25.5	499	31.8	3,017	118	87.5
Chi., St. P., Minneap. & Om.1937	3,620	6,091	9,711	7.4	18,552	1,448	604	26.5	484	28.5	3,016	101	68.7
.....1936	3,395	5,936	9,331	9.7	17,692	1,391	569	26.0	452	27.2	2,710	107	65.4
Great Northern.....1937	36,483	14,778	51,261	5.0	37,177	2,615	1,194	32.9	763	39.9	5,146	94	72.5
.....1936	36,651	16,472	53,123	5.3	38,081	2,547	1,093	30.4	666	38.5	4,432	101	64.4
Minneap., St. P. & S. St. M.1937	12,717	5,104	17,821	2.9	23,383	1,505	651	26.8	512	30.0	2,163	92	97.9
.....1936	12,385	5,521	17,906	5.1	22,175	1,419	600	25.4	416	24.1	1,755	94	87.4
Northern Pacific.....1937	28,357	8,254	36,611	6.6	30,572	2,040	813	25.6	625	39.8	3,503	133	73.7
.....1936	26,152	10,462	36,614	8.8	29,708	1,939	771	24.5	576	36.8	3,283	138	79.3
Central Western Region:													
Alton.....1937	2,381	6,398	8,779	16.6	33,902	1,450	574	24.5	472	29.4	4,499	118	85.5
.....1936	2,349	6,441	8,790	23.5	33,664	1,467	595	24.7	452	27.1	4,422	111	77.6
Atch., Top. & S. Fe (incl. G.C. & S.F. & P. & S.F.).....1937	65,050	14,845	79,895	8.0	33,810	1,831	645	21.9	512	35.8	3,055	111	82.8
.....1936	61,804	13,718	75,522	10.5	33,689	1,831	619	21.4	500	37.1	2,894	114	77.5
Chicago, Burl. & Quincy...1937	25,482	20,308	45,790	5.7	30,036	1,783	740	25.0	737	46.9	3,693	109	94.2
.....1936	23,967	19,696	43,663	7.1	28,114	1,631	666	24.8					

To Lengthen HOSE LIFE

To insure longer life for air brake hose we have improved the coupling, nipple, and clamp to provide more secure clamping and thereby reduce the possibility of damage to fabric cords and inner tube by pulling, flexure, or external blows.



The shank of couplings and nipples is shortened and reshaped to a large, smooth ball contour that increases the hose bearing area . . . The inner face of the clamp is shaped to the con-

tour of the nipple. These matching contours bring a greater area of the hose into clamping contact . . . A wider clamp and stronger bolt further increase the security of hose assembly.

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